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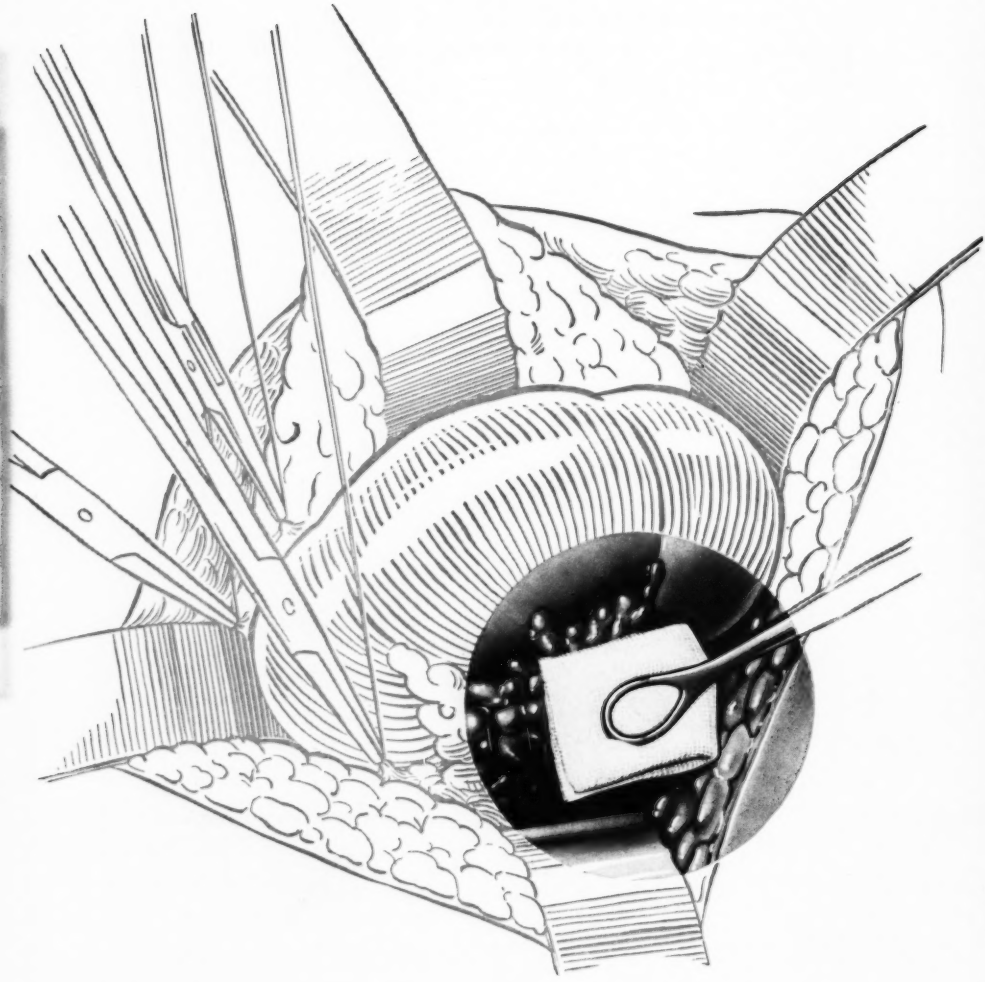

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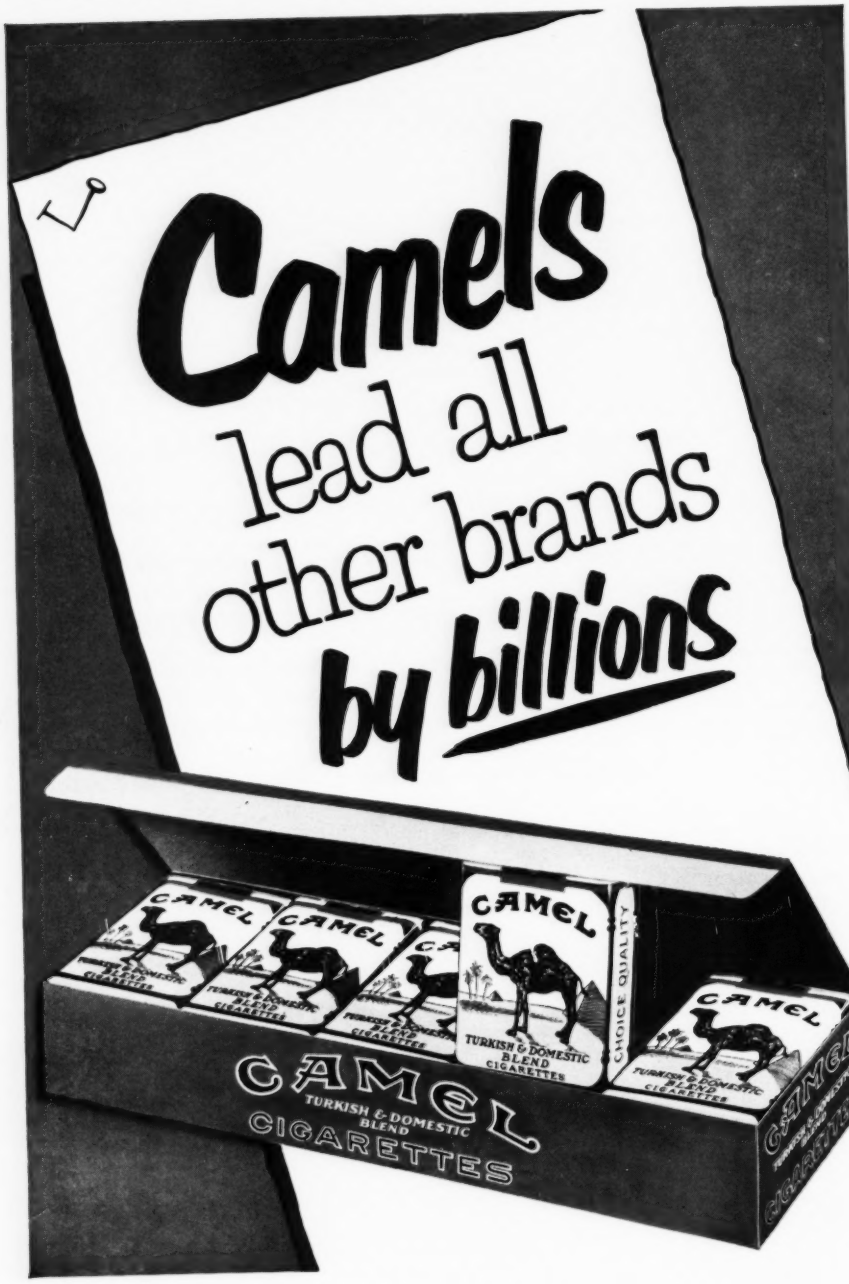
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*Davis, W. D., Jr.: A Critical Evaluation of Therapy in Cirrhosis of the Liver, South. M. J. *44*:577 (July) 1951.

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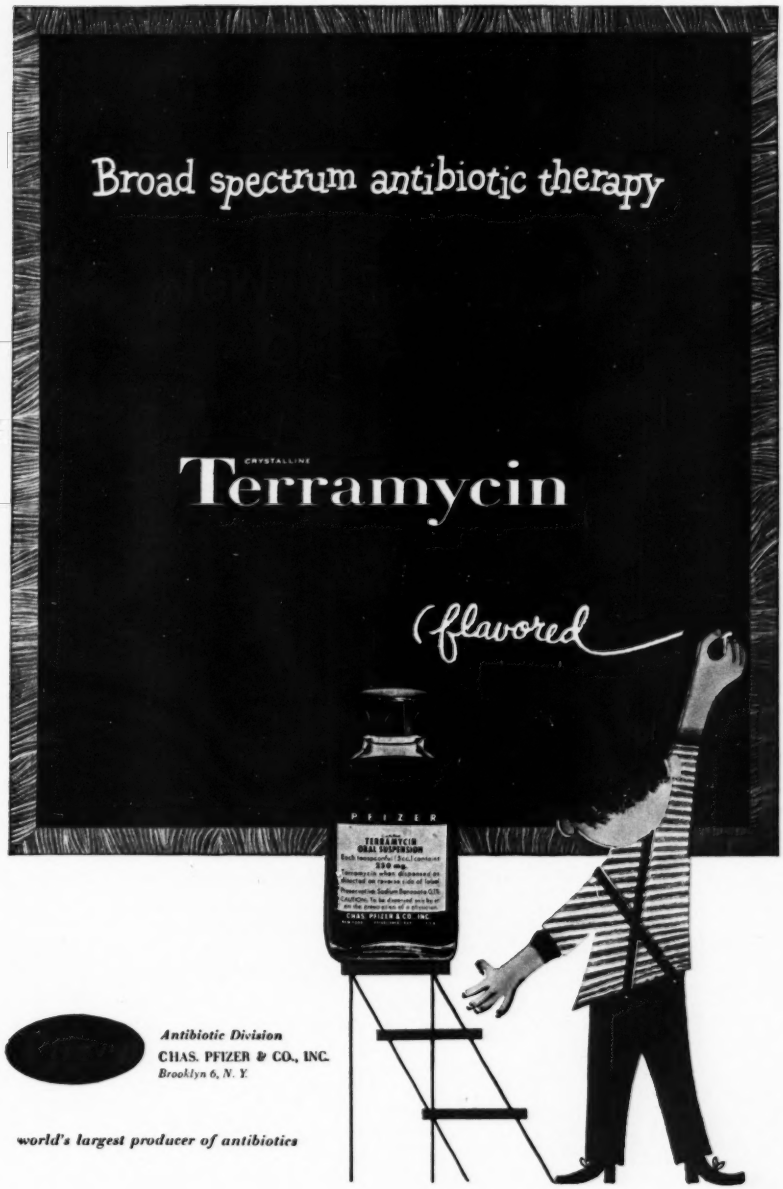

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1. Hutcheson, J. M.: Management of Cardiac Failure. *Virginia Med. Monthly*, 74:458, Oct., 1947.
2. Noth, P. H.: Pick's Disease: A Record of Eight Years' Treatment with Salyrgan, Ammonium Nitrate, and Abdominal Paracentesis. *Proc. Staff Meet. Mayo Clin.*, 12:513, Aug. 18, 1937.

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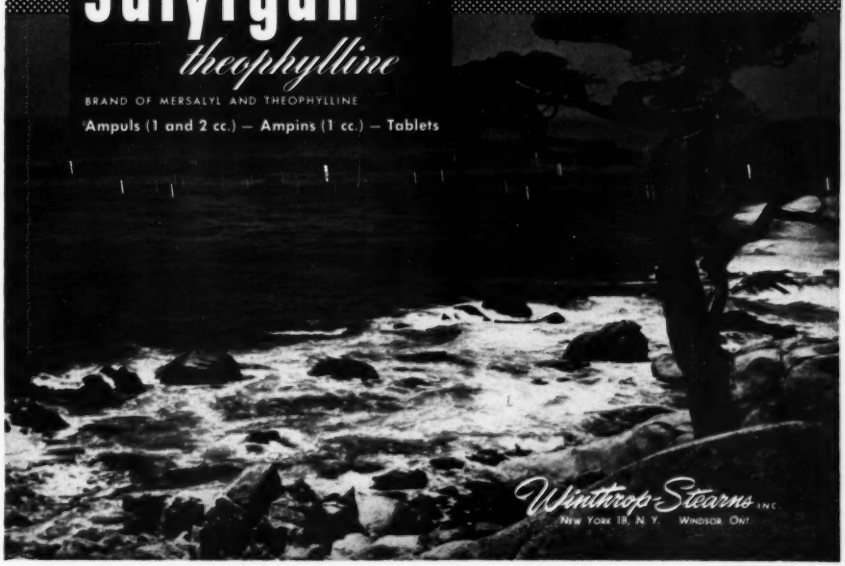

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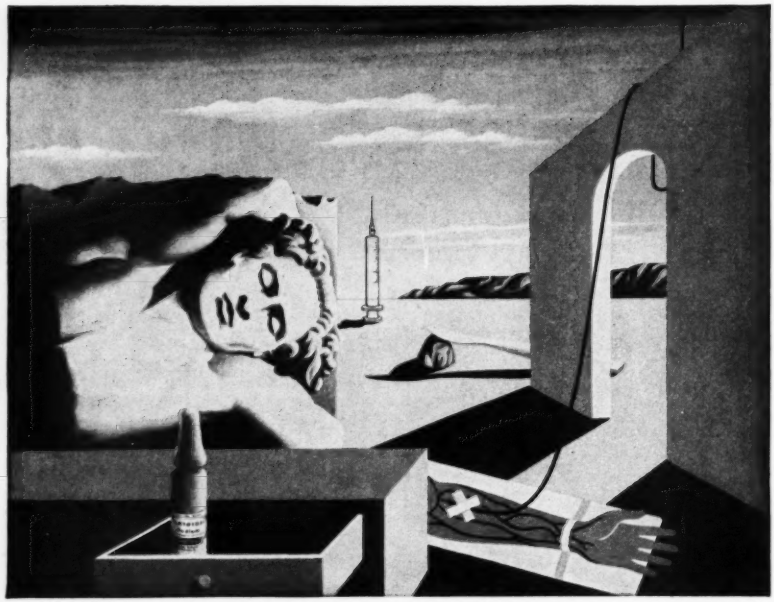

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Adams, R. Charles (1951), Intravenous Administration of Pentothal Sodium in Combination with Other Anesthetic Agents and Methods, J. Missouri Med. Assn., August.

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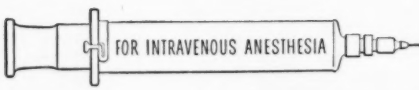

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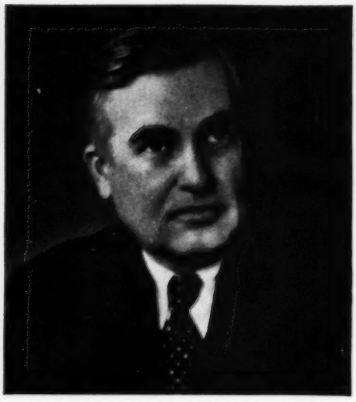

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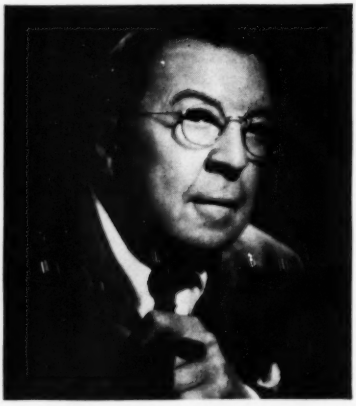

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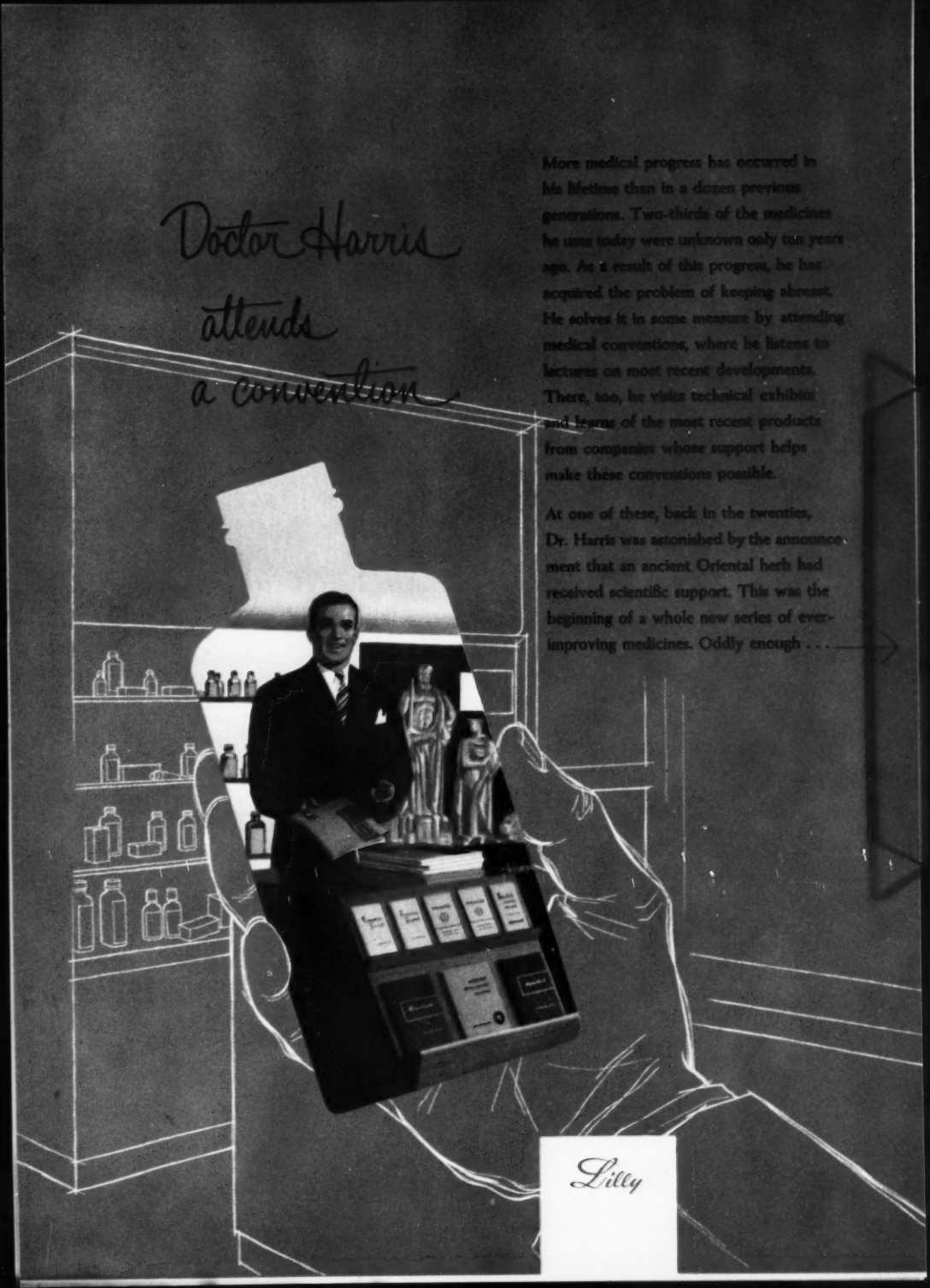

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DELAWARE STATE MEDICAL JOURNAL

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THE DELAWARE HEALTH AND MEDICAL SERVICE PLAN FOR CIVIL DEFENSE

F. I. Hudson, M. D., M. P. H.,*
Dover, Del.

The State Board of Health, through its Executive Secretary, has for the past two years had the responsibility of state-wide planning for the public health and medical service activities of the State Civil Defense program. A preliminary plan was outlined in 1950, which has since been revised and expanded. No planning of this sort can produce satisfactory results without the full understanding of the physicians of Delaware. Cooperation of the state and county medical societies, dental societies, hospital associations, and other auxiliary organizations is essential. For the information of these individuals and groups, the following revision of the basic Health and Medical Service Plan is being provided:

Delaware Office of Civil Defense
Health and Medical Services Plan
(Revised)

1. *Mission*

To preserve mental and physical health and life in time of disaster caused by enemy attack, sabotage, or other hostile action by:

1.1 Relieving immediate suffering following an enemy attack.

1.2 Reducing disability and preventing death.

1.3 Restoring and maintaining normal health services and functions.

1.4 It is assumed that such disaster will require the augmentation, mobilization, organization and direction of all medical and public health facilities, resources, and personnel of regularly constituted health and medical organizations within the State.

2. *Organization*

2.1 The Health and Medical Services Division consists of a Chief, a Deputy Chief, a headquarters staff, and seven sections, which are:

2.111 Emergency Medical Section
2.112 First Aid Stations Section
2.113 Transportation and Supply Section
2.114 Public Health and Sanitation Section
2.115 Vital Statistics Section
2.116 Training Section
2.117 Personnel Section

2.12 The Chief of the Division is responsible for the procurement, organization, training, and mobilization of medical and public health services and facilities.

2.13 The head of each section or subsection is responsible for recruiting the necessary staff for his service.

2.14 The organizational chart of the Division is shown in Appendix A.

2.2 The Emergency Medical Services Section is responsible for emergency medical care of casualties, including hospitalization, supervision of the emergency mortuary services, hospital laboratories, and the care and disposition of the undischarged hospital census at the time of disaster.

2.21 The Section is organized into three sub-sections, which are:

2.211 Emergency and Reserve Hospitals Sub-Section
2.212 Mortuary Sub-Section
2.213 Laboratory Sub-Section

2.3 The First Aid Stations Section is responsible for the development of plans and procedures for the establishment and functioning of first-aid stations.

2.31 The organization and operation of first-aid stations is the responsibility of the County Director and the Local Civil Defense Director.

2.4 The Training Section is responsible for developing training programs and di-

* Executive Secretary, Delaware State Board of Health, and Chief of Health and Medical Services, State Department of Civil Defense.

rectives, supplying training material, and when requested, securing instructors so as to insure complete readiness and training of the Division.

2.41 The Section is organized into three sub-sections, which are:

2.411 Public Health Education Sub-Section

2.412 Emergency Medical Training Sub-Section

2.413 Casualty Traffic and Movement Training Sub-Section

2.5 The Transportation and Supply Section is responsible for the procurement, storage, issue, and distribution of State medical and public health supplies, and through the Ambulance Sub-Section is responsible for the transfer of casualties under the care of the Division.

2.51 The Section is organized into four sub-sections, which are:

2.511 Ambulance Sub-Section

2.512 Supply Transportation Sub-Section

2.513 Emergency Medical Supplies Sub-Section

2.514 Public Health Supplies Sub-Section

2.6 The Public Health and Sanitation Section is responsible for the development of the plans for the mobilization of public health facilities, including sanitary and veterinary personnel, to prevent, control and limit disease, and the effects of bacteriological warfare.

2.61 The Section is organized into three sub-sections, which are:

2.611 Preventive Medicine Sub-Section

2.612 Sanitation Sub-Section

2.613 Veterinary Sub-Section

2.7 The Vital Statistics Section is responsible for the registration of deaths, births, marriages, and divorces of human beings. To insure as complete a registration as possible at the time of disaster, the section will organize trained registration teams, who will be made available to the Mortuary Sub-Section of the Emergency Medical Services Section.

2.8 The Personnel Section is responsible for maintaining a roster of known available physicians and surgeons, dentists, nurses, veterinarians, physical therapists, chiropractors, morticians, pharmacists, and other auxiliary medical personnel in the State. This roster shall include names, addresses, telephone numbers, civil defense duty assignments, and such other data as directed by the Chief of the Health and Medical Services Division.

2.81 Upon request of a County or Local Civil Defense Director, a separate roster of the medical and health services personnel of that area will be provided.

3. *Operations*

3.01 Action to be taken on the Yellow Alert:

3.011 Personnel to be notified by the State Director: The Chief of the Health and Medical Services Division. No further action on the Yellow Alert.

3.02 Action to be taken on the Red Alert: All personnel notified through the Civil Air-Raid Warning System.

All personnel take cover.

3.03 Action to be taken on the White Alert:

3.031 All personnel report to their civil defense post.

3.032 The Chief of the Health and Medical Services Division will remain at the executive offices of the State Board of Health at Dover.

3.033 The Deputy Chief of the Division will proceed to the State Control Center.

3.034 Special groups will take action as follows:

3.0341 First Aid personnel will report to assembly points.

3.0342 Emergency hospital teams will report to hospitals.

3.0343 Ambulance service will report to predesignated locations.

3.0344 Emergency Medical Supply sub-section will establish contact with and supply emergency hospitals according to the initial supply plan, which is given in Appendix B.

3.0345 Sanitation sub-section will determine the availability of reliable water and milk supplies.

Public Health Nurses will report to welfare centers, according to the plan given in Appendix C.

3.1 *Emergency Medical Services*

3.11 The Emergency and Reserve Hospitals Sub-Section will establish hospitals, each headed by a Director appointed by the Chief of Emergency Medical Services Section, at predesignated hospitals, schools, or other suitable locations, which are given in Appendix D.

3.111 If the initial location cannot be used because of damage, the personnel will report to an alternate location.

3.112 It may become necessary to establish hospitals in excess of the predesignated number. In selecting buildings for such use, special attention should be given accessibility to:

3.1121 Reliable water supplies.

3.1122 Electric power supplies, including emergency power plants.

3.1123 Sewage disposal facilities.

3.1124 Workable transportation routes to first-aid stations.

3.1125 Adequate heating and kitchen facilities which are essential. Laundry facilities are very desirable.

3.113 All existing usable hospital facilities will function as emergency or reserve hospitals, depending on their distance from the location of principal disaster. Designation of facilities as either emergency or reserve hospitals will be the responsibility of the Chief of the Division.

3.12 *Personnel*

Each emergency hospital will be staffed by an emergency medical team of basic strength sufficient to provide emergency hospital care for one hundred casualties. Emergency hospital populations in excess of one hundred will be cared for by additional whole or partial teams as required.

3.121 Detailed analysis of staff requirements and duties are outlined in a standard administrative manual, which is Appendix E.

3.131 The hospital Director is responsible for maintaining liaison with the Supply and Transportation Section, and developing coordinated prearranged plans and procedures for the initial movement of emergency supplies to his hospital.

3.132 The hospital Director is responsible, through his staff, for recording admissions, discharges, and deaths of casualties in his hospital.

3.133 The hospital Director is responsible for liaison with the County first-aid organization to insure that a first-aid station is located immediately adjacent to the hospital.

3.1331 The principal duty of this first-aid station will be to provide first-aid services to those casualties who seek admission to the hospital, but lack first-aid screening.

3.134 The hospital director is responsible for maintaining a morgue for the proper care of casualties who die in his hospital. He will maintain liaison with the mortuary sub-section.

3.14 Casualties at an overloaded emergency hospital who, when received or after emergency care, can be transferred without undue injury or suffering to a reserve hospital ,and who require further hospitalization, will be so transferred.

3.15 *Mortuary Sub-Section*

3.151 The Mortuary Sub-Section is responsible, through liaison and coordination with the County Civil Defense Director and his mortuary staff representative, usually the County Coroner, for:

3.1511 The establishment of mortuary centers.

3.1512 The preparation and distribution of forms necessary for the operation of emergency mortuary centers.

3.1513 Designation, in advance of the time of disaster, through coordination with the County Director and his representatives, usually including the County Engineer and the County Coroner, of suitable locations for emergency cemeteries and receiving vaults, and of areas for mass graves.

3.1514 Prompt removal of dead casualties from a disaster area, first-aid stations, emergency hospitals, and any other point of death, to the emergency mortuary center.

3.1515 Identification of dead casualties.

3.1516 Registration of deaths, in cooperation with the Vital Statistics Section teams, and in accordance with established legal procedure.

3.1517 Proper burial of casualties, including religious ceremonies appropriate to the burial.

3.1518 Coordination, including training where required, with all civil defense personnel, whose principal duties are likely to involve dead casualties.

3.16 *Laboratory Sub-Section*

3.161 The Laboratory Sub-Section is responsible for the clinical laboratory services necessary in hospitals.

3.162 The Laboratory Sub-Section will organize a sufficient number of Blood Supply teams to supply the blood requirements of hospitals during a disaster caused by enemy attack, sabotage, or other hostile action. The organizational chart is given in Appendix F.

3.1621 The Blood Supply team is responsible for the collection of blood obtained from individual donors.

3.163 The Laboratory Sub-Section will incorporate all available facilities and personnel of the American Red Cross Blood Program.

3.2 *First Aid Station Section*

3.21 The First Aid Station Section will assist the County Civil Defense Director in organizing first-aid facilities in his area by recommendations concerning:

3.211 The number of first-aid stations needed in his area.

3.212 The staff required for each first-aid station, which is given in Appendix G.

3.213 The supplies required for each first-aid station, which are listed in Appendix H.

3.214 Functions of the first-aid station, which are:

3.2141 Tagging and evacuation of the wounded from the disaster area.

3.2142 The control of hemorrhage.

3.2143 The control of pain.

3.2144 The treatment of shock.

3.2145 Application and adjustment of splints.

3.2146 Dressing of wounds.

3.2147 Giving anti-bioties.

3.2148 Screening of casualties for transfer to hospitals or for discharge.

3.2149 Completion of *standard tag for patients.*

3.21410 The maintenance of a log of all casualties treated.

3.22 The point of initial assembly of personnel, and storage of initial first-aid supplies, for each first-aid station, should be predesignated. The first-aid station is responsible for furnishing its own transportation from the assembly point to the point of operation.

3.23 As soon as the first-aid station can be moved forward from its established location of operation to a point nearer the center of disaster, such a move should be made, but close contact must be maintained with the Ambulance teams serving the station to assure that ambulances report to the proper collecting area.

3.24 The head of a first-aid station should establish an emergency morgue near to the first-aid station for the proper care of dead casualties at the first-aid station, and should maintain liaison with the Mortuary Sub-Section to insure their prompt removal.

3.25 The head of a first-aid station is responsible for requesting additional first-aid supplies from the supply section.

3.26 If initial mobilization cannot be accomplished because of inaccessibility or major damage of initial supplies, the first-aid team should assemble, the head should report the status of the station to the local civil defense control center and request additional supplies.

3.27 First-aid stations should establish collecting areas for the disposition of treated casualties awaiting transfer to hospitals.

3.271 The Ambulance Service will be responsible for the transportation from the collecting area to the hospital.

3.28 First-aid litter teams are responsible for tagging all casualties found in the field for their movement to the first-aid station.

3.281 The first-aid station is responsible for tagging any untagged casualties treated.

3.3 *Transportation and Supply Section*

3.31 Ambulance Service Sub-Section:

The Ambulance Service will transport casualties from:

3.311 First-aid station collecting areas to emergency hospitals.

3.312 First-aid station collecting areas to reserve hospitals.

3.313 Emergency hospitals to reserve hospitals.

3.314 Medical and health facilities to homes, or other locations when required.

3.32 The transportation equipment of the Ambulance Service must be designated and assigned in advance of the time of disaster, and should not be used for purposes other than the transportation of casualties.

3.321 All existing ambulances and hearses will be designated as part of the transportation equipment of the Ambulance Service.

3.322 Station wagons, panel trucks, and modified pickup trucks will form additional sources of transportation equipment for this service.

3.323 Arrangements should be made in advance to provide adequate supplies and issue of fuel and lubricants to insure ambulance service without interruption.

3.324 Those persons whose facilities have been designated for use in the ambulance service are urged to maintain their equipment in readiness at all times, especially in regard to the mechanical condition, lubrication, and gasoline supply.

3.325 Each ambulance should be equipped with a first-aid kit which is listed in Appendix K.

3.326 Each ambulance should be equipped with litters and blankets sufficient to effect an exchange of such when it is necessary to transfer casualties on equipment belonging to first-aid stations or hospitals.

3.33 Ambulance personnel should be well trained in first-aid, as they are responsible for the care of casualties during the period of transfer.

3.34 An ambulance dispatcher must be provided in each first-aid station collecting area, and each hospital facility, to insure proper flow of ambulances. At large hospital facilities, a separate section for the reception of ambulances may be required.

3.35 The Supply Transportation Sub-Section will provide, through coordination with the Transportation Division of the State Department of Civil Defense, the necessary vehicles to transport medical and health supplies from the storage points to the points of issue and delivery.

3.351 Special procedures must be developed, as prescribed by the Federal government, for the handling of special drugs, such as narcotics.

3.36 *Emergency Medical Supplies Sub-Section*

3.361 The First-Aid Station Supply team will issue additional first-aid supplies to stations on a package basis, when such supplies are ordered by the head of a First-Aid Station.

3.362 The Pharmaceuticals team will issue standard drugs and biologicals to hospitals or other facilities prescribed by the Chief of the Division.

3.363 Surgical Textiles team will issue dressings and other surgical textiles to hospitals and other facilities prescribed by the Chief of the Division.

3.364 The Equipment team will issue medical equipment such as instruments, to directors of hospitals, or heads of First-Aid Stations, as requested.

3.37 The Public Health Supplies Sub-Section will secure, store, and issue necessary supplies for purification of drinking water, milk sanitation, insect and rodent control, and veterinary and other public health requirements.

3.4 *Training Division*

3.41 The Public Health Education Sub-Section will utilize the normal channels of communication of the State Board of Health in preparing its technical publications and in releasing public health information to the State.

3.42 The Emergency Medical Services Sub-Section will utilize the facilities of the State Board of Health, and in addition, whenever possible, use the facilities of the

State Medical, Dental, and other professional societies, and state and national publications.

3.43 The Casualty Traffic and Movement Training Sub-Section will prepare and conduct any training necessary to insure that the Health and Medical Services are able to maintain an even and continuous flow of casualties resulting from a disaster.

3.5 *Public Health and Sanitation Section*

3.51 The head of the Preventive Medicine Sub-Section will direct and supervise the mobilization of State and local health department staffs for the prevention of disease and for defense against bacteriological warfare.

3.52 The local health departments will be responsible for plans to control communicable diseases, for conducting the necessary immunization, for the maintenance of public health services for mothers and children — including public health nursing service in welfare centers —for the establishment and coordination of public health laboratory facilities in local areas, and for promoting mental hygiene.

3.53 The local health department will conduct, in cooperation with the Sanitation Sub-Section, field investigations, when required, to determine the existence of bacteriological contamination and initiate such control measures as are required.

3.54 Prior to the time of disaster the Sanitation Sub-Section will establish emergency sanitation standards and designate emergency water supply.

3.541 Following a disaster, they will, through the local health departments, maintain pure water supplies, examine milk facilities to insure a safe milk supply, and recommend sources to replace those made inoperative.

3.55 They will provide for frequent inspection of the preparation and serving of food at emergency feeding centers and hospitals, and other public feeding centers.

3.56 They will direct proper disposal of waste and sewage, and supervise the sanitation of emergency housing areas. They will plan adequate measures for the control of insects and rodents following a disaster.

3.57 The Veterinary Sub-Section will carry out the same health measures with regard to animals as the Preventive Medicine Sub-Section carries out with human beings.

3.571 They will cooperate with the Sanitation Sub-Section in the initial investigation of food and milk facilities following a disaster.

3.6 The Vital Statistics Section will be the Vital Statistics Bureau of the State Board of Health.

3.7 *Personnel Section*

3.71 The Personnel Section will be the normal personnel record facilities of the State Board of Health.

3.72 This Section will not recruit personnel for the Health and Medical Services Division.

The above plan indicates that the staff of the State Board of Health, with the assistance of the State Office of Civil Defense, have many duties, such as coordinating local resources, the training of key personnel, the acquisition of/and storage of supplies, together with the total duties mentioned in the plan. Much has already been accomplished. Medical and first-aid supplies have been ordered, and for the large part delivered, to take care of the first few hours of an emergency. Emergency hospital facilities for 18,000 casualties have been established and considerable training of key personnel and nurses has already been done. There is yet much training, assignment of voluntary personnel, and details of operation to be completed. All physicians are urged to give their loyal and continuous support to the program instituted to save every possible life, should an actual enemy attack occur. Such action will not only assure our own survival, but also the survival of our state and nation.

Note: Appendices mentioned in the plan will be available to persons interested, upon request. They are too lengthy for publication with this paper.

POPULATION GAINS DURING THE PAST DECADE

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The population gains in Delaware continue at an unabated rate due to the excessive number of births and the continuing lower general mortality rates. During 1951 the number of births in Delaware set an all time high. There were 8203 births, which numbers 325 more than the previous high number registered in 1947. A similar pattern has prevailed throughout the United States during the past few years, wherein the excessive number of births has shattered all previous predictions and estimations. Each year for the past five years more than 3,500,000 have been recorded in the United States. When the estimated number of unregistered births are totaled with those registered for the country, we have a number that will closely approach the 4,000,000 mark in 1951. The recent increase in all areas of the country reflects in part the increase in the marriage rate after the start of the war in Korea. Even more important, the improved economic conditions of recent years appear to have brought a more favorable attitude toward earlier marriage, starting families, as well as the creation of larger families.

In practically all areas of the country, marked developments have taken place in population growth during the past few years. These developments may have been unfavorable in a few areas as a result of emigration of wage earners and their families in pursuit of better wages and living prospects. In Delaware such developments were favorable. From 1940 to 1950 there was a gain of 51,585 inhabitants as shown by figures of the seventeenth decennial census conducted in 1950. There was nearly a 20 percent gain in the decade mentioned. Still more striking is the fact that Delaware gained during this period extra numbers of people nearly as great as the entire population of Sussex County in 1940. Many of these people (14,021 in number) migrated to the state as a labor force in order to benefit from employment opportunities offered by Delaware's industrial facilities. The gain shown (51,585) from 1940 to 1950, less immigration (14,021), results in the number 37,564 which is relatively a group reproduced from the existing population of Delaware. This natural increase in the population has flourished. Since 1940, through a high rate of natural increase, Delaware's population has been boosted 37,564 individuals; to the extent of the entire population of Kent County; to the extent of ten of our largest incorporated towns exclusive of the City of Wilmington. This is a sizeable number of people considering that it has taken place within the past few years—since 1940.

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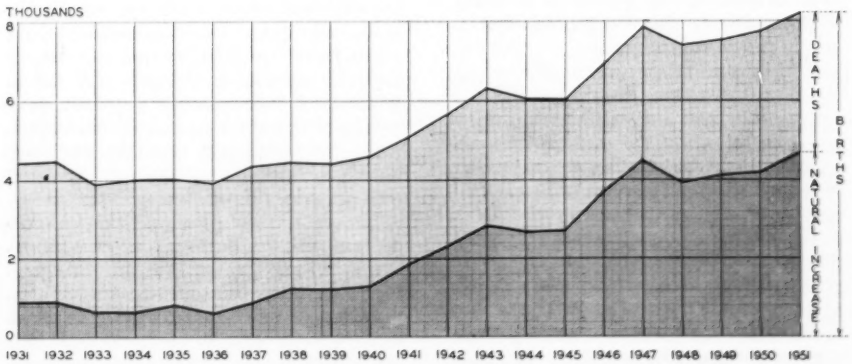
BIRTHS, DEATHS AND NATURAL INCREASE IN POPULATION
DELAWARE, 1931—1951



Twenty-five thousand by natural increase of population have been added since the close of World War II. Needless to say, no like period in the growth of our state has been experienced previously. Since World War II 45,759 births have been registered in Delaware and 20,546 deaths. The births minus the deaths leaves a remainder of 25,213 which is called the natural increase in the population.

The accompanying chart shows the contribution to Delaware's population by large numbers of births and consequently to the remarkable growth of the State during late years.

A noteworthy accomplishment contributory to our growth is the lowered infant mortality rate and the continued lowering of the general mortality rate. The rate of general mortality prevailing a decade ago would have resulted in three to five hundred more deaths per year than we are having at the present time.

Light upon the records of our time show us in an extremely favorable position in the growth of our state and nation—a high natality rate, a low mortality rate, and some contribution to increase the longevity of man becoming apparent each year. It will be an accomplishment, indeed, if the well being of man progresses as favorably. The great vitality of our people being so recorded, we may look forward to the richness of a healthy and expanding economy.

WATER IS MANNA FROM HEAVEN

Preservation Of Its Quality Is A Basic Necessity To Our Health, Comfort And Economy

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Rain, snow, hail and sleet are precipitated upon the surface of the earth and may be considered as the original source of all water. Part of this water becomes available for direct use in stream flow and ground water, and part is lost through processes of evaporation and transpiration.

The capacity of the atmosphere to retain water vapor is a function of the temperature so that when the temperature of the atmosphere falls below the dew point, the temperature at which the atmosphere becomes saturated with moisture, precipitation results. The factors involved in this phenomenon are many and their interrelation is complex. Some of these factors are: temperature, barometric pressure, prevailing winds, mountain barriers, relative position of land and water areas, and altitude.

Precipitation from above will normally infiltrate into the earth, constitute surface runoff, be absorbed by vegetation, and partly evaporate as it is falling. Water infiltration into the ground will either be a source of water for vegetation, for the soil, water to the streams, or ground water to the oceans. Water remaining upon the ground surface will evaporate in various ways and return to the heavens above from which it may again be precipitated. This cycle, fortunately, is a continuous one. Water may return to the skies by evaporation during its falling, evaporation from vegetation, evaporation from ponds and open storage areas, transpiration from trees, evaporation from soil, evaporation from streams, and also evaporation from the ocean.

The largest and most accessible supply of water for both domestic and industrial purposes is made available during surface runoff, that is, in streams. Water precipitated from the atmosphere, high above the earth's surface, is practically pure. As the water descends, it will take into solution the common constituents of air, such as oxygen, nitrogen, and carbon dioxide. As precipitation approaches the earth, it will also absorb dust, smoke, and fumes which are present in the atmosphere. In addition, bacteria and the spores of microscopic organisms may also be included and consequently considered as a portion of atmosphere pollution. The concentration of atmospheric pollution is directly related to the type of city and industrial establishments in the vicinity. The amount of impurities derived from the atmosphere is generally small and decreases with the duration of the rainfall and often are not significant from a sanitary standpoint. These atmospheric waters are also lacking in hardness-producing mineral matter and are soft and quite corrosive. As the water strikes the

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earth's surface and passes through various environments, the characteristics of the water itself will vary considerably.

The amount of surface material carried into the streams depends upon the character of the surface material and the relative steepness of the catchment area. In general, if the area is steep, the rapid runoff tends to cause rapid erosion and vice versa. Mountain streams, on the other hand, are often clear and prairie streams muddy due to differences in surface soil. At its headwaters in the mountains, a stream which has been formed due to precipitation is relatively pure.

The water was only pure at its original source, that is, in the upper atmosphere. Organic residues of plant and animal life are either dissolved from the upper layers of the soil and the forest loam or are carried into the stream as insoluble suspended matters by surface wash. All these materials, although from natural sources, are foreign to the water itself and even if they are unobjectionable, constitutes stream pollution in a strict sense. The organic residues, picked up from the soil, constitute the nutrient basis for the development of bacteria, microscopic animal and plant life. These nutrients, in turn, are food for successful life stages, such as worms, mollusk, insect larvae, etc., down through the major fish life of fresh and salt waters.

The relatively pure upland streams and lakes provide scenic beauty and recreational facilities. Greater appreciation and wider use of these national assets have stimulated considerable interest in reforestation and for survey studies and cooperative soil erosion land management programs. The freedom of the waters in a mountain stream may be short-lived, for these waters may find themselves impounded in a storage reservoir. Storage is the first instance which represents regulated control of runoff. This storage reduces the inherent undesirable aspects of unregulated streams with its spring floods, summer droughts, and occasionally years of extremely low total yield. The upstream storage may also be the source of water supply, flood control, irrigation, power, low dry weather flow, and salinity control. In addition, during the storage period sedimentation, siltation, and color reduction are affected. Temperature variations which induce "turn-over" brings undecomposed food from the bottom and therefore improves the water quality during its period of retention.

As the waters reach the plains the increased sources of pollution associated with increased activities, such as agriculture, rural and urban populations including industry, come into the picture. Smaller amounts of pollution may reach the tributary waters through the runoff from areas assigned to agricultural and swampy areas, but the latter often contribute high concentrations of organic color. Also increased plant and animal micro-organisms may find their way to the waters of the streams from these areas.

The advantages of storage are not always without certain disadvantages. Development of plant and animal life, especially microscopic life, to an extent which may bring about undesirable changes in water quality may prove detrimental. In domestic water supplies microscopic blooms are often the basis of taste and odors usually found in potable water. There are various ways of reducing these disadvantages to a minimum, and these methods are employed throughout the country.

Further downstream we often find an industrial community which in former years had invariably discharged their wastes, untreated, directly into a nearby stream. This waste disposal by dilution was practiced for many years but with increasing development throughout the country, it has become apparent that these polluted waters are now seriously needed for process waters and often domestic water supplies. Specifications for process water of many industries, such as textile and paper, are high and the presence of most wastes are objectionable. It is often necessary, therefore, to place restrictions upon the assumed riparian rights of some of these mill owners in order that the actual rights of others, downstream, may not be infringed upon.

In our present day and age we continually find that water, our most important resource, can be affected harmfully by unjustified usage, specifically when little or no consideration is given to the quantity of wastes dis-

charged to receiving streams. Certain natural pollution entering the stream through surface washings and drainage can be absorbed by a stream without ill effect. Every body of water has an ability to self-purify provided the pollution received is not so excessive as to overtax or upset its natural biological balance. Before this biological balance could be destroyed, regulatory measures should be instituted as to insure a water capable of serving the best interests of the people.

Strong water pollution abatement policy is needed. A community has various interests in its streams, ponds and lakes in addition to a possible source of drinking water. Industry needs clean water; bathing needs clean water; fisheries need clean water; navigation depends upon clean water and, odd as it may seem, industrial and domestic waste disposal need clean water to minimize their detrimental effects upon the stream. Either one, all, or part of the above usages may be deemed of primary importance in evaluating the needs of the community within a specific drainage basin area. Water is either directly or indirectly related with our health, comfort, and economy. Preservation of our water quality is a basic necessity to life itself.

PROGRESS MADE TO DATE IN FLUORIDATION OF PUBLIC WATER SUPPLIES

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Less than two years have elapsed since the American Dental Association, followed in close succession by other professional organizations, including the American Medical Association, adopted a resolution approving the fluoridation of public water supplies as an acceptable technique capable of reducing the high incidence of dental caries among children. The intervening months have witnessed similar action by the majority of state and local component societies including our own state Medical and Dental Associations, by state, county, and city boards of health, and by numerous civic, service and community groups throughout the country who are vitally interested in the dental welfare of children.

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Physicians, dentists, nurses, teachers, and all other professional persons who have contact with children of preschool and school age are concerned for their dental welfare. They know from their own observations and from the numerous surveys made in the past several years that dental caries rank first among all physical defects found among school children. They also know that there is no hope that any more than a small percentage of this segment of the population will ever be able to receive the dental care which at least 95 per cent of all the children need. Their only hope is the newly discovered fluorides added to the public water supply or applied topically to the teeth of individual children at regularly stated intervals. Either method will result in a substantial reduction in the yearly incidence of dental caries, but for long-range planning, and this is necessary in a program involving millions of children, the first mentioned method is most acceptable. In the first place, it is known that the ultimate reduction in dental caries is greater, some 60 to 65 per cent decrease as compared with 40 to 50 per cent obtained with the topical application of sodium fluoride and that this protection can be made available to the masses of children at a much lower per capita cost. Finally, the fluoridation of public water supplies does not require the large number of professional personnel necessary for the topical application of fluoride. This a factor which must receive consideration since dentists and dental hygienists are alone certified to perform this service, and in either group they are far too few in number to render a service required by so many. A true sample of such a situation may be found here in Delaware where there are too few dentists to provide adequate dental service for the entire population, and there are not enough dental hygienists to supply either private offices or schools. With the exception of the City of Wilmington, there are no dental hygienists this year to work in the white schools of the state.

It is rather remarkable in view of the widespread approval stemming from so many outstanding professional groups as was mentioned earlier, that the progress of fluoridation up to this time has in the opinion of

some authorities fallen short of that which was anticipated. However, interest does exist in all parts of the nation, as indicated by the number of communities now engaged in obtaining fluoridated water. According to the Council on Dental Health of the American Dental Association, "more than 300 communities in the Continental United States have fluoridated water and 269 communities have approved the measure for future adoption—outside the Continental United States limits too, this public health measure is gaining acceptance. The Panama Canal Zone water supply provides fluoridated water for all the Canal Zone as well as Colon and Panama City and its suburbs as far as Juan Diaz. In Alaska, the procedure has been approved for Anchorage. Kilmarnock, Scotland, will be the first British city to fluoridate its water supply."[1] While this information is encouraging, it must be noted that there are in all, 16,000 communities in the United States for which fluoridation could be made available. At the present rate of progress, it is estimated that some forty to fifty years must elapse before benefit to all the children can be assured when the task could and should be completed in less than five.

Although Delaware was one of the first states in this section of the country to accept topical application of fluoride and Newark one of the first cities in the United States to approve fluoridation of its public water supply, progress here has been less notable than that in neighboring states. To mention but a few, Maryland now has 60 communities with fluoridated water, including the city of Baltimore; Pennsylvania has five with several approved including Philadelphia; while New Jersey, according to reports received in July, has 20 communities in one county where fluoridation is now in operation. The District of Columbia started fluoridation this past June.

The reason or reasons why the people of this state have not participated actively in a program which holds so much promise for the improved dental status of their children may spring from conservatism and their unwillingness to attempt anything so new. On the other hand, there may be local problems as in Dover where the Junior Chamber of Commerce has been working for fluoridation since 1951. Apparently, the situation there is rather unique since the water supply for the town is distributed from several rather than one central point. While the Junior Chamber of Comerce has purchased three fluoridation units for wells now in use, the City Council is faced with the problem of how to obtain two more units for wells to be dug in the near future, as well as suitable housing for all five units. Up to this time and no doubt for the above reasons, the present town council has not approved fluoridation for Dover.

It is quite possible that problems of this or a similar nature have arisen in Wilmington for which fluoridation was recommended last spring by the New Castle County Medical Society, and in New Castle, Claymont, Smyrna, Milford, and other communities where the sponsors were interested local groups or individuals. In smaller communities, however, the inability of local officials to meet the requirements of the State Board of Health for properly trained personnel to be responsible for feeding the fluoride compound and do the routine testing of the water will no doubt create a problem.

But difficulties of this kind are normal and to be expected. Also they can and will be overcome in time. The same, however, is not true of the propaganda being issued by bitter opponents of fluoridation whose literature and adverse publicity of one kind or another is rapidly finding its way into the hands of key persons in communities everywhere—even Delaware. It is to be hoped that the people here are too sensible to allow themselves to be influenced in such matters, but it has happened in other states and could happen here. Physicians are not unaware of the existence of such opposition, their own profession having found a parallel in those persons who have for years opposed vaccination. In medical history, too, there is reference made to those groups and individuals who "complained that chlorination increased gastrointestinal diseases, caused cancer and other systemic illnesses and 'dezincification of hot water heaters'."[2]

Whether it be vaccination, chlorination, fluoridation or something else to promote

public health and welfare, the need for unified effort to combat opposing forces is always present, and physicians in their busy lives carry a large part of the burden since it is to them that their patients go eventually for counsel and guidance. The present issue —fluoridation—is no exception and in cities throughout the nation physicians are working shoulder to shoulder with dentists and other professional groups in an attempt to discourage public acceptance of any and all such fallacious literature. A recent report of the AD HOC Committee of the National Research Committee of the National Research Council, Division of Medical Sciences, offers substantial evidence favoring the fluoridation of public water supplies and should be of interest to such groups. Quoting from the conclusion to their study: "In view of these considerations, your Committee recommends that any community which includes a child population of sufficient size, and which obtains its water supply from sources which are free from or are extremely low in fluorides, should consider the practicability and economic feasibility of adjusting the concentration to optimal levels. The adjustment should be in accord with climatic factors and a constant chemical control should be maintained. With proper safeguards, this procedure appears to be harmless. However, it should be conducted under expert dental and engineering supervision by the State Board of Health. It should not be undertaken unless this can be provided. How much reduction in the prevalence of caries will actually be realized in any community will vary according to local conditions. The procedure will supplement but not supplant other dental health measures. About one half of the population of this country is living in small villages and rural areas and will not benefit by fluoridation of public water supplies. Other provisions for preventing dental caries in this fraction of the population should be continued and developed."[3]

Much of Delaware, as we know, falls into the last mentioned category, since approximately one third of our child population comes from rural areas or small villages for which fluoridated water cannot be made available. However, topical application of fluoride could be made available for such children at three-year intervals in a program such as the State Board of Health through its Division of Oral Hygiene has conducted during the past three years. This would require a substantial increase in personnel when available but it would give all children the benefit of either one of the two protective measures and assure a future when their dental health would be vastly better than it is today.

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THE PROBLEM OF CONGENITAL SYPHILIS IN DELAWARE

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When attention recently was focused upon the seemingly static incidence of congenital syphilis, and when this type of infection was cited as a major problem, most venereal disease control officers felt that this was contrary to their experience and that some portion of the statistics was probably subject to false interpretation. For that reason, an effort was made to study the situation in the state of Delaware. The study was conducted along two lines, a survey of all cases currently under observation being coupled with an attempt to discover new cases.

The search for new cases embraced an intensified effort to secure blood-testing of potential cases. This extended first to all children born of mothers known to have had syphilis at or before the time of the pregnancy that resulted in their birth, regardless of what antiluetic treatment the mother may have received. Testing of siblings of cases suspected of having congenital syphilis was also especially sought. Physicians conducting child health conferences or examining preschool and school children were instructed to be on the lookout for stigmata of congenital syphilis, and dental hygienists and dental internes were asked to look especially for dental abnormalities which conceivably result from heredo-lues. These measures were in addition to the already established program of

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testing in certain schools, and of testing infants born of mothers treated for syphilis during pregnancy. To facilitate this collection of blood specimens from children, some were drawn in well-child conferences when circumstances made it inconvenient or impossible for the child to attend a regular venereal disease clinic. In some instances, the health officer went into the home and obtained blood where there were several children who could not get into clinic, and a few specimens were taken at the time of regular school examinations.

When a preliminary report of this study was made at a regional Venereal Disease Control Conference conducted by the United States Public Health Service in New York City on May 21, 1951, it was stated categorically that the increased emphasis upon testing of infants and children did not seem productive in discovering new cases. However, suspicious molars noticed by a dental hygienist led to the discovery of five infected siblings shortly after the period included in the report, and makes one reconsider the value of such a program. The project might have been much more extensive and conceivably therefore more productive if there were not the requirement of large volumes of blood for adequate testing. Physicians and parents alike abhor venipuncture; many more mothers would permit heel puncture or similar procedure, while the suggestion of jugular puncture brings instant rebellion and it is the practical truth that many well-child clinics are conducted in one or two rooms where privacy for such procedures is not obtainable. Many physicians who wanted to cooperate were rebuffed by the inability to withdraw enough blood, while others were reluctant to make an attempt and shied off with some excuse even after the public health nurse had referred a child to them for that specific purpose. The Filter Paper Microscopic or similar test could become very helpful in such cases if made more sensitive, even though it might continue to lack specificity. Our own laboratory is being urged to adopt some type of exclusion test which requires less blood as well as quantitative tests which are reliable when the volume of blood is small.

The case survey included a review of all cases of congenital syphilis seen in the clinics of the Delaware State Board of Health during the years 1949 and 1950, regardless of the time the diagnosis was first made. Insofar as possible the review extended also to all cases reported under surveillance for congenital syphilis by hospitals and private physicians during those same years. This review was aided by a questionnaire seeking a brief history of the case, the date of diagnosis, the basis of discovery and the history of any treatment received by the mother prior to birth of the infected child.

One hundred and eleven cases of congenital syphilis received attention in the clinics during the period. Of these, twenty-six were detected for the first time; nine others were admitted who had received previous attention in other states; and the diagnosis was established in five of our own cases who had been known for some time and received treatment for what had been considered to be acquired infections. As noted in Table 1, only six of the new cases were under one year of age, and just one other in the group was under one year of age when first placed under treatment. More significantly the great majority of these patients were adolescents and adults whose disease stemmed from inadequate control measures of a previous era.

Records do not reveal in every instance what instigated the recent clinic visit; but as shown in Table II, a known case returned in twenty-two instances because she herself was pregnant, and twelve were brought back by examinations for employment or food-handling. Others sought examination for marriage, as a routine procedure, as registrants for Selective Service and as contacts of other venereal disease patients. Eight complained of skin eruptions or genital discharges which they believed to be of venereal origin. Some already treated for syphilis were found to have congenital infection as a result of critical re-evaluation for failure to make the expected response to treatment.

The clear implication is that the techniques employed to discover new cases of syphilis are also effective in disclosing late congenital infections. Furthermore, these cases are subject to repeated rediscovery as so frequently they are seroresistant by reason of having car-

ried their disease for a long time and because of sporadic, interrupted and inadequate treatment in the past.

TABLE I

Age Distribution of One Hundred and Eleven Cases of Congenital Syphilis Observed During 1949 and 1950

Age Group	New Patients	Old Patients At Original Visit	Old Patients At First Return During Period
Under 1 Year	6	1	
1 To 2 Years	2	1	1
2 To 6 Years	2	7	1
6 To 14 Years	3	24	9
14 To 21 Years	8	25	26
21 And Over	14	18	39
Total	35	76	76

TABLE II

Factors Responsible For Clinic Visits of Patients Infected With Congenital Syphilis Under Observation During 1949 and 1950

Factor	Route of Discovery of New Patients	Route of Discovery of Old Patients	Reasons For Return of Old Patients
Familial Contact	8	24	
Contact Other VD	2		3
Investigation			
Of Symptoms	5	4	8
School Examination	4	6	3
Pre-Employment And			
Foodhandlers' Exam.	4	16	12
Premarital Exam.			5
Prenatal Exam.	1	8	22
Selective Service			
Examination	5	2	6
Post-Treatment			
Observation			18
Referral From			
Elsewhere	5	12	3
Other And Unknown	1	4	
Total	35	76	80

It is surprising that even in a small state like Delaware, there is so much duplication of effort. One case of interstitial keratitis was handled by four separate entities, three of whom had made the report of a new case; this child of a migrant family had received treatment in two states before coming to our attention and moved on to still another state where further care was necessary. Multiple reports of the same case obviously distort the picture as to the true incidence of congenital syphilis, while lack of proper coordination occasions reduplicated and unwarranted treatment. The attempt to maintain a register of these patients is especially difficult as so many are in early adult life and continually changing their addresses and occupations and indeed their names.

Cases reported as congenital spyhilis by private physicians and by hospitals do not lend themselves to satisfactory analysis because the diagnosis is often reached without adequate consideration. Fortunately a great number of these reported cases were subjected to further extensive observation which enables us to point out some cause of confusion. More than a dozen infants treated for syphilis had to be eliminated for lack of conclusive evidence of their being infected. Most of these were delivered of mothers whose serologic tests were positive but who had received adequate treatment of which the reporter was unaware or disdainful. Often treatment of the infant was initiated on the basis of positive serologic tests of the cord blood regardless of what treatment the mother may have received. Two of these mothers themselves had completed treatment for congenital syphilis and two others had received two courses of penicillin during their prenatal period. Two infants with negative serologic tests were proclaimed to have clinical signs of syphilis, the description of which is not convincing and in all probability attributable to simple infections which also respond to penicillin. Treatment of all of these cases negated the value of subsequent serologic tests which remained negative or promptly declined to negative. Another group of patients reported by private physicians were adults, usually female, reported speculatively as congenital. None of them bore stigmata, while in several instances there was corroborative evidence to indicate the infections to be acquired. The propensity of some physicians to declare a latent case congenital is probably balanced by the more common tendency to fail to recognize congenital infections in the adult.

Although the number of infected children is small, there is much to be learned from analysis of their cases, and one could scarcely find a more potent argument for vigilant supervision of the pregnant woman, whether syphilitic or not. The record is not one to generate pride even if it is not easy to place the blame. Three of these mothers had no prenatal supervision and were not aware of their infection until they had syphilitic babies. One mother had received treatment for a

brief period several years before the birth of her child but had been lost from observation. Another seen early in pregnancy received weekly injections of bismuth, and another also discovered in time received only eight injections of mapharsen prior to delivery. Still another was referred for treatment with penicillin but received only two injections before she hid away to escape some legal difficulties. A mother who had negative serologic tests at the fifth month of pregnancy, delivered a child found to be syphilitic at two months of age, at which time the serologic tests of both parents were positive in high titer. Two mothers who had received courses of penicillin prior to pregnancy subsequently bore syphilitic children, but neither had reported for observation of the response of her infection to treatment and neither had prenatal serologic testing.

In only one instance was there failure of penicillin to protect the infant when administered prenatally, and that instance will always remain open to question as the course given during pregnancy was the second received by that mother and had been administered although her Kahn titer was low; the case is included solely because the infant died at four months of age of a debilitating illness which was reported as syphilis "on clinical grounds".

There is always the temptation to censure the patient for failing to seek prenatal care or to chide the midwife for accepting a patient who has had no prenatal examination, but responsibility is not relieved that easily. One mother had gone through prenatal care and delivery by a private physician and again three years later by a hospital clinic without ever having a serologic test for syphilis. A positive cord blood at the second delivery led to discovery of infection in the mother and the first child, while the second subsequently was proven to have escaped infection. An English war bride had one baby in England and another in a neighboring state, but was not discovered to have syphilis (congenital) until her third pregnancy. So we find that while we advocate repeated serologic testing of the pregnant women, we must constantly proclaim the fundamentals, as entirely too many women are being delivered without ever being tested.

It seems incredible that a disease for which we can do so much, should continue to pose problems, but it appears that as long as syphilis is endemic, it will remain a threat to the welfare of unborn children. Yet we cannot let our zeal to eliminate congenital syphilis push the pendulum too far in the direction of treating more babies, as too many now receive treatment on suspicion. While we condone treatment where the disease is likely to be present and there is doubt that adequate observation can be extended, we also feel that the decision should be made only after serious consideration. Penicillin prophylactically may be innocuous but possession of a powerful weapon cannot substitute for good clinical judgement, and there are many implications and responsibilities which cannot be avoided by the mere exhibition of treatment.

To clear up the backlog of congenital syphilis is a tremendous task, but every case that develops henceforth must be regarded as a disgrace and a reflection of our collective failure, for it is our responsibility to search unceasingly for every victim of syphilis and erect barriers against its spread until our whole population is rid of the disease.

SUMMARY AND CONCLUSION

1. The static incidence of reported cases of congenital syphilis does not reflect failure of our present recommended treatment for the pregnant woman with syphilis.
2. There is definite evidence that the picture would improve if we were to use our best knowledge and facilities.
3. As long as syphilis is endemic it is a hazard to the unborn child.
4. Repeating the serologic test in late pregnancy is a desirable practice.
5. Intensive search for new cases of congenital syphilis in children has been relatively unproductive.
6. The techniques already employed to find unknown cases of syphilis also disclose an appreciable number of late congenital infections.
7. Most reported new cases are adults who are already aware of their disease.

8. Diagnosis of syphilis in infants presents problems that require much consideration and effort.

9. Many uninfected infants needlessly are treated for syphilis.

10. We must continue to try to furnish the physician the means to handle the congenital syphilis problems more satisfactorily.

THE DELAWARE CLEFT PALATE PROGRAM*

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When Dr. Ivy invited members of the staff of the Delaware Cleft Palate Clinic to participate in this cleft palate conference, he suggested we emphasize organization and the group diagnostic method of handling the problem. We shall attempt to follow through on his suggestion.

The Delaware cleft palate clinic is in its infancy—it first started operating this past September. However, some services to the cleft lip and cleft palate child had been in operation years previous to this—namely, plastic surgery and speech therapy. The cleft palate diagnostic clinic developed as a result of the orthodontists' interest in developing an orthodontic program for dental malocclusions. They approached the State Board of Health with that suggestion. An orthodontic program was outlined leaning heavily on the plans originated by other states, mainly New York and Pennsylvania.

In developing the plan, after discussion pro and con, it was decided to initially limit the orthodontic program to cleft palate children, although the plan permits acceptance of a much wider range of handicapping malocclusions. The reasons for reaching this decision were (1) that cleft palate and cleft lip cases were already accepted by the Crippled Children's Services for plastic surgery, speech therapy, and related medical social and public health nursing services, (2) the number of cases of dental malocclusions that could be treated was limited both by the amount of orthodontic services obtainable and the budget available, (3) it was recognized that the cleft palate child requires many varied services and therefore is the type of case that demands a coordinated treatment program.

In writing the orthodontic plan, provision was made for furnishing pedodontic services and speech appliances as indicated. The orthodontic treatments are conducted at the offices of the orthodontists participating in the program. The children are referred back to their family dentists for pedodontic services, the Division of Crippled Children subsidizing the cost of dental treatment when such financial assistance is indicated. If there is no family dentist they are referred to a dentist selected by the Division.

Having reached the decision to give cleft palate children primary consideration in the provision of orthodontic services and recognizing that proper handling of the cleft palate child necessitates a team approach and integration of the various specialized services, a conference was called on July 17, 1951, in which the interested orthodontists, the medical director of the duPont Institute, the consultant in plastic surgery of that institution, the Director and the Coordinator of Speech and Hearing Services of the Division of Crippled Children's Services, all participated. At this conference it was decided to hold clinic sessions at which diagnostic surveys would be conducted on cleft palate children. The following were to attend the cleft palate sessions to be held monthly: the consultant in plastic surgery to the Alfred I. duPont Institute, one or more of the three participating orthodontists, and the following staff from the State Board of Health—the Director of the Division of Crippled Children's Services, who would also act as pediatricain in the clinic, the Coordinator of Speech and Hearing Services or another of the speech therapists of the Division, a medical social consultant from the Division, and a public health nurse from the New Castle County Health Unit. Doctor A. R. Shands, Jr., Medical Director, Alfred I. duPont Institute, very kindly offered the use of the physical facilities of the Institute for the holding of this clinic.

I should now like to briefly describe how the clinic operates. We first started scheduling three children for each clinic session, but soon dropped the number to two. The cases

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to be seen are selected from those already receiving services from the Division of Crippled Children's Services, and those referred to the Division for this clinic. Referrals to the clinic also come from the Alfred I. duPont Institute, which provides plastic surgery for many of the cleft palate children in the state. Our procedure is as follows: The public health nurse routes the patient and parents through the clinic. During this procedure she often picks up pertinent information which she can later transmit to the group. The medical social worker in her interview with the parents determines their economic status, uncovers and evaluates social problems and prepares the parents to ask questions they desire answered. The public health nurse substitutes in this capacity whenever the medical social worker is absent. Following this interview, the patient is examined and evaluated separately by the pediatrician, speech therapist, orthodontist and plastic surgeon. The clinic members then meet in a group conference, discuss their findings, and arrive at a joint decision on recommendations to be followed in the treatment of the case. Priorities and the sequence of treatment are established. The parent is then called in and advised by a member of the group of the clinic recommendations—their reactions toward the acceptance of these recommendations is ascertained. Economic eligibility comes into play with the provision of treatment services but is not a factor in the provision of the over-all diagnostic survey.

A report on the various findings, the clinic conference and clinic recommendations is then dictated and typed in a number of copies. The Division of Crippled Children's Services assumes the responsibility of arranging for the carrying out of the various recommendations on the financially eligible group. Auxiliary services are called upon, such as the mental hygiene clinic for psychometric and psychological evaluations, the speech and hearing program of the Division of Crippled Children's Services for audiological and otological problems. A complete record is kept on file at the office of the Division of Crippled Children's Services. The clinic report and pertinent information are distributed to the Alfred I. duPont Institute, the appropriate county health unit, and to the various individuals who will be participating in the treatment of the child.

I believe we have the advantage in Delaware of operating in a small state with a relatively small population of somewhat over 325,000. This leads to a closer relationship between the clinical and administrative aspects of the program, which is an advantage in promoting a smoothly operating program. However, despite the fact that Delaware is small, it has a long north-south dimension. The only large city, Wilmington, is located in the extreme northern part of the state, close to the Pennsylvania line. Almost all of the resources are located here. This means that we are still faced with the problem of getting children to clinic from a distance of 100 or so miles in some cases. It also means that if orthodontic treatment is initiated these children must travel long distances to get to the orthodontist's office. Therefore, before initiating any treatment program, we must take into careful consideration whether the child can get to the services and whether the family have enough interest to get there regularly.

In concluding my portion of the description of the Delaware program, I should like to state that in the few months we have been operating we feel that we have been progressing satisfactorily, and we feel that this type of clinic service offers advantages that would be most difficult to obtain in any other manner.

THE ROLE OF THE SPEECH THERAPIST IN THE CLEFT PALATE CLINIC

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Almost anyone can now identify the philosophy which denotes that we are interested in helping children learn to walk so that they can go up and ask for a job, but we do not do much about the person who can walk up to get a job but can not ask for it once he is there. The enthusiasm and sincerity with which Dr. Herbert K. Cooper of Lancaster,

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Pennsylvania, launched his clinic for the total rehabilitation of the cleft palate child has gained the admiration of the nation.

In March of 1948 Dr. Cooper spoke at an Institute planned for the staff of the Delaware State Board of Health and other interested persons. It would not be difficult to believe that our present program in Delaware began in many minds on that day. Later that year the Director of Crippled Children's Services, an orthodontist in the state and the speech therapist spent a day observing Dr. Cooper's clinic in operation.

In August of last year two days were spent in observing the work of the Speech Clinic at Pennsylvania State College and conferring with Dr. Eugene McDonald who directs that clinic. We were, by that time, organizing our own program and Dr. McDonald's extensive experience in the field of speech in this particular area was invaluable.

The effect upon speech of any oral deformity will depend upon the severity of the deformity and upon the ability of other articulatory organs to compensate either after surgical and orthodontic restoration or without it (when it is not deemed feasible). There are three deformities to be considered: cleft lip, dental malformations and cleft palate or there may be a combination of these. Frequently the lip is not involved. If it is involved and has been repaired, the clinician sometimes encounters cicatrized tissue that lacks mobility. This will affect all sounds which are made by the lips (p,b,m). There can be no clear-cut explosion of "p" or "b" and there may be leakage of air on "m".

The malformations of the teeth may or may not affect the speech. It is well known that the tongue compensates in an astonishing manner in many persons who have severe dental malocclusions and the speech, as a result, is acceptable. The relationship of the speech therapist to the orthodontist in this team is that of one who advises in deciding whether or not an orthodontic problem is the cause of the speech deviation. The orthodontist decides whether treatment is wise and is feasible.

When surgery has been performed, the speech therapist is interested in knowing which muscles were involved and the condition of the pharyngeal and palatal musculature post-operatively. A sufficiently long and mobile palate is desirable for adequate speech. Sometimes this cannot be obtained surgically and a speech appliance provides a more efficient closure of the palate. The speech therapist again advises the surgeon on the acceptability of the physical structure for speech. The surgeon determines the feasibility and prognosis of operative procedures.

In cleft palate speech all the sounds of speech are distorted to some degree. The most general description would indicate that there is nasalization of all vowels and vowel-like sounds and some distortion of the nasal sounds. There has been research to indicate that we have placed too much emphasis on nasality and that we should give more attention to the articulatory problems.

In the clinic we try to understand the structure we are dealing with so that we may plan adequate speech therapy. We are looking for answers to several pertinent questions:

1. Is the patient able to close the nasal port and thus prevent so much of his speech from sounding nasal?
2. Is his palate long enough to assist in proper closure of the nasal port and in adequate production of velar sounds?
3. Is the structure adequate for good speech (or better than the patient now has) with or without an appliance?

In evaluating the speech involvements and speech possibilities:

1. What does an articulation test reveal?
2. Is there a difference between production of isolated sounds and connected speech?
3. What does a routine audiometric test reveal about his hearing?
4. What is causing the nasality?
5. What can he do with the musculature that he has?
6. What about his breathing pattern? Sustained exhalation?
7. If he has an appliance, is it acceptable for speech?
8. If he does not have an appliance, does he need one?
9. What is his attitude toward his speech? (If he is aware of it).

If there is indication of a significant impairment in hearing, the patient is referred

to the Delaware Hospital Audiology and Speech Center where he receives an examination by an otologist and a complete audiological evaluation.

If the attitude toward his speech is a major factor, he is referred to a competent psychologist at the State Mental Hygiene Clinic. This evaluation, as well as the hearing appraisal, gives additional assistance to those working with him and particularly to the speech therapist.

If speech therapy is recommended, the therapist sets two major objectives:

1. To obtain optimum control and use of the palatal and pharyngeal muscles.
2. To attain maximum intelligibility and pleasantness of speech in order to make him a useful and happy citizen. The therapist follows standard techniques for this therapy and any other method which she can devise which is found to be successful.

You know the feeling of helplessness when you tried recently to make a long distance telephone call and the communication lines were silent. The communication lines are down most of the time to an unrehabilitated person with a cleft palate. We believe that we have begun the process of restoration in Delaware and we are glad that speech therapy is included in the program of total rehabilitation. With Dr. Cooper, we want to be sure that the person with a cleft palate can ask for a job once he reaches the employer's desk.

THE ADVANTAGES TO THE ORTHODONTIST OF THE GROUP APPROACH IN TREATMENT OF THE CLEFT PALATE PATIENT*

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In this day of specialization, everybody is an expert in his field. But how can one individual be an expert in every field? This is the problem that faces an orthodontist in planning treatment for a cleft palate patient.

The primary interest of an orthodontist is the prevention and correction of malocclusions of the teeth. Obviously, the aims of the plastic surgeon or the speech therapist are quite differently directed. Yet it is becoming more and more apparent that the aims and abilities of all of these experts must be focused on the cleft palate patient and coordinated to bring about the most successful result in treatment.

With a great many of the youngsters with cleft palate, the permanent teeth, upon eruption, present a greater or lesser degree of malocclusion. In past years, when such a patient was presented to an orthodontist for treatment, the teeth were badly jumbled, the palate had been operated from one to four times with varying degree of success, and the speech was far from acceptable. In order to develop a proper plan of treatment for the case, it was necessary to obtain the advice and recommendations from our allied fields of surgery, speech, psychology, medicine, etc., and etc. It would be appropriate to make note at this point that in Delaware we have no large medical centers where all of the many services might be readily available for consultation. In order to obtain such information, it was necessary to arrange for an appointment with the private office or public agency where each individual service might be obtained. This was not only a time consuming, but very often a costly and discouraging procedure. Assuming that all of this information was eventually assembled and evaluated, it was often necessary during the course of orthodontic procedures to obtain further consultation and advice from these allied fields. Under the best of circumstances, it was occasionally necessary for the orthodontist to assume responsibilities outside of his field.

After heaping all of these problems on top of the many difficulties encountered in orthodontic treatment of the malocclusion of the cleft palate, it is no wonder that many orthodontists held a dim view of the prognosis in treatment of these cases. Yet the cleft palate is essentially an oral problem, and since dentistry and the special field of orthodontics is primarily concerned with oral problems, a solution to this situation had to be developed.

In the realization of the problems, and in view of the fact that all of the necessary expert personnel were available, although in

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small numbers, in Delaware, it was only necessary that they be assembled. This would not only facilitate the proper evaluation of the individual cleft palate case, but would serve a mutual benefit. And so it has functioned with our group.

In the planning of orthodontic treatment for one of these patients, it is most encouraging to know from the beginning where the dental aspect fits into the over-all picture. From the speech therapist, we learn how much of the defective speech is due to the physical deformity, and the extent to which the presenting malocclusion is responsible for the defective speech. With this information, it is possible to work out a treatment approach that not only will correct the malocclusion but equally important will serve most to aid in speech improvement. Often the relocation of one or two of the teeth will be of considerable help to the speech therapist in producing some of the sounds. In the design and construction of a speech appliance, the suggestions of the speech therapist will in great measure aid in the successful function.

The plastic surgeon can offer an appraisal of the possibilities or limitations of further surgery. In some instances we find that perforations in the palate are more amenable to treatment by prosthesis than by surgery. On the other hand, it may be that the construction and use of a speech appliance would be more successful if a re-division of the palate was first accomplished. And in turn, such treatment can render tremendous help to the speech therapist. The surgeon's advice regarding the possibilities of surgical replacement of the mandible is invaluable in the cleft palate case with severe mandibular prognathism—a most difficult type of malocclusion to correct otherwise. It is so much more gratifying to be able to obtain this information at one complete session of personal contact and discusion than from many typewritten pages of a formal case history.

The psychological appraisal of the youngster's ability to cooperate with the many demands of complex and lengthy orthodontic treatment combined with the findings of the medical social worker can very readily serve to influence the approach to treatment. It is quite possible that on the basis of these findings, it would be far more advisable to limit the extent of orthodontic treatment and consider the possibility of the construction and placement of prosthetic appliances. In either event, it is possible to feel far more secure in the treatment plan as eventually developed and carried out.

After sufficient time has elapsed for corrective efforts to be carried out, it will be most comforting to be able to return to the group with a given case for further evaluation. It is not conceivable that in every instance each treatment plan will proceed smoothly to completion. Herein will be a service of inestimable value, not only for the patient, but for the orthodontist as well.

Thus far in our efforts it has proved an enlightening experience to realize how much each of our professional services has to offer to the other. We will continue to gain in knowledge of our own field and in that of our related fields to the ultimate benefit of our patients.

WILL THE CHILD OUTGROW HIS SPEECH PROBLEM?

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Speech itself is not something that comes to us automatically, although most of us tend to regard speech as a function that will develop by itself if given enough time. To a certain extent, because of the natural way in which speech develops, this is true, but it is certain that none of us would have speech today if it were not for a wide range of outside factors acting directly upon us to influence our total maturation both in a physical and a non-physical sense. In reality man has learned to use for speech, organs that were evolutionally intended for more basic functions. It is because of this "borrowing" of organs that we refer to speech as an overlaid function. However, since most of us have been subjected to similar environmental and developmental factors we have been able to set up a schedule or scale for development of speech as it should occur in the average or so-called normal individual.

Dr. Charles Van Riper[2] has outlined the development of speech in the following

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manner. During the first month after birth we can expect the child to vocalize to the extent that we can hear certain vowel sounds produced along with the crying of the infant. By the end of the third month the child has added more vowel sounds and a limited number of consonant sounds. During this period there is usually more non-crying vocalization and the crying vocalization begins to be differentiated according to the type of discomfort such as pain, hunger, etc. In some children repetitive chains of sounds will appear during this period. By the end of the sixth month we would expect to find a rhythmical babbling and more non-crying sounds than at three months. At the end of the ninth month the child has begun to cry and yell to get attention, there is more pitch variation in the sounds produced, and in some instances the child will repeat sounds given to him by the parent but he does this as a form of babbling rather than as a response to adult stimulation. During the period from the tenth through the twelfth month the child will make an effort to imitate a number of sounds and syllables that he hears in the speech of his parents. Sometimes the child will repeat a word if the parent introduces it into the child's vocal play. These words, however, will usually not be retained in the child's vocabulary but rather they are a form of echo play in which the child indulges at this time. By the end of the twelfth month we can expect some children to have developed their first true words, and by the end of the eighteenth month the child should have a vocabulary of from ten to twenty meaningful words. These words may have sounds or syllables missing, but to the child and parents they have meaning. During this period the child's speech, with the exception of these few words, consists mainly of jargon but jargon at this period differs from earlier vocalizations in that it has emotional content and it is also the child's attempt at imitating the fluency of his elders. Usually by the time the child has reached his second birthday he should be talking. His speech at this period usually consists of phrases or short three and four word sentences like: "Want milk." "Cookie all gone." "Kiss mama." The articulation at this point is most always faulty and there seems to be little voice control. From the age of two the child's speech begins to develop at a more rapid rate until the age of five or six when we expect the child to have completed his speech development.

Sometimes, however, during this critical period in the child's development something may go wrong. Any number of factors may come into play which could have a direct effect on the child's speech. Often times these factors operate to produce a fault in articulation. The child who develops this difficulty does not produce all of the speech sounds in the accepted manner. Because of this his speech tends to call attention to itself and in some cases can be quite difficult to understand. While these disorders may take many forms, Dr. Wendell Johnson[1] and other authorities prefer to group them into the following three classifications: (1) substitutions, (2) omissions, and (3) distortions.

Substitution errors are commonly found in small children and a typical example of this might be the child who says, "Wabbits eat cawots." This child is of course substituting the *w* for the *r* sound.

Errors of omission are also common to small children. Often the child will omit the final consonant sound or when two consonants are blended together in the middle of a word such as the *s* and *t* in stop, one of the two may be omitted.

The errors of distortion are usually considered to be the most common or frequently found. Often children have great difficulty in making a good *s* sound. The *s* may hiss too much or in the production of the *s* a so-called "lisp" may appear.

All of these types can be related to either a functional or an organic basis. Whatever the cause it is certain that disorders of articulation make up the greatest percentage of speech cases seen by speech therapists. Figures provided by the Mid-Century White House Conference on Children and Youth[2] show the following: Of the assumed total population of children from between the ages of five and twenty-one years (40,000,000), 1,200,000 or 3.0% will have an articulatory problem. Five percent of the total age range population can be expected to have a speech

fault of one form or another, so when we consider the fact that 3.0% of this total is involved with an articulation problem it is not hard to understand the great need for attention that these particular anomalies require.

It is not only because these cases are in the majority that the speech therapist is anxious to begin work at an early age, but for other factors which are equally if not more important. Because this problem is seen so frequently, the common belief seems to be that if it is forgotten the child will in time outgrow his difficulty. *While this may be true in some fortunate cases, it is not the general pattern.* During the period from three to six the child is rapidly learning new words, ideas, situations. He is in a hurry to express his thoughts and yet he does not have the vocabulary to make an adequate showing. As a result frustration may occur with the speaking situation. Incorrect sounds are developed and reinforced. The child's desire to imitate the speech, both in inflection and vocabulary choice, of his parents is often so great that other more serious speech problems may develop. Dr. Van Riper[2] has said that children definitely *learn* to talk. "Their parents do the teaching, and it is usually very poor. Because of the widespread ignorance concerning speech development and the teaching of talking, many children: (1) fail to practice their speech sounds in vocal play; (2) do not learn how to imitate sounds; (3) do not learn that sounds can be meaningful and useful tools; (4) do not practice or profit from their jargon; (5) resort to gesture and other substitute behavior rather than develop a growing vocabulary, and therefore they (6) lay the foundation for defective speech."

Since the speech therapists with the State Board of Health are concerned with the preschool child, our work in the area of articulation must of necessity be along the lines of prevention of speech problems. If a child at the age of three or four has a speech fault, it is important that work along the preventive lines begin as soon as possible. Speech therapy with children at this age level does not consist of speech exercises, word lists and drills but instead is an indirect approach to speech hygiene, accomplished through play and story periods with the therapist. *If the child is left to his own devices, there can be no guarantee that time will cure the problem.* Speech therapy then in *all* cases must be on a cooperative basis between the therapist and the parent. The speech therapists with the State Board of Health devote time to both the child and the parent whenever possible. Suggestions for home therapy and a discussion of present clinic work is usually included in this period.

Any physician can refer a pre-school aged child for a diagnostic speech interview by mailing one of the referral forms available through the Division of Crippled Children's Services, Delaware State Board of Health, Dover, Delaware. Thus with the close cooperation of the physicians throughout the state in making referrals for any type of speech deviation to the speech therapists with the State Board of Health, it is hoped that a constructive program of speech help can be developed that will aid the children of Delaware.

SUMMARY

1. A discussion of speech development as it might be expected to occur within the so called "normal" child is given.
2. A discussion of the problems that may appear in a child's speech with a description of the three major types of articulation errors found is presented.
3. The importance of early speech training and speech hygiene is emphasized with a brief description of the methods used by the speech therapists with the State Board of Health.

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UNDERSTANDING THE SICK CHILD

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A physican knows well that an illness may be a major event in anyone's life. In the case of a child it may or may not have a marked effect on his developing personality. What will be the effect of illness on the child? Will he return from the hospital with confidence in the adult world, which will give him assurance in meeting life's problems as they occur; or will he develop mistrust of adult motives and behavior, retain fears of doctors, hospitals, white gowns, and even strange situations in general? These questions should not be ignored. In many emergent situations there is no great choice of action. But, in general, a child can not be said to benefit when, in remedying a physical condition, we create new problems for him or intensify existing ones.

Responsibility is Everyone's

The responsibility for preparing the child to meet his illness lies with everyone—the parents, doctor, nurse, medical social worker, and therapist. The physician's responsibility in preparing a child for surgery does not begin when surgery is first contemplated but at the time of his first contact with the child and parents. Very important is this relationship with the child, but no less so, his guidance of the parent and child relationship. Anything he can do to aid this relationship is not only practice of good mental hygiene but time well spent which may lead to less hectic periods in the office with apprehensive children and exasperated mothers.

A child knows when a doctor is his friend, and a person who likes and wants to understand him. Even if a painful treatment must be done, he accepts the fact that the doctor will keep his word and hurt him only as much as necessary. Scolding him when he is frightened will only convince him the doctor does not like him. A word of praise for the manly way he bore the pain will mean much to the child and the trust he has in the doctor.

*Medical Social Consultants, Delaware State Board of Health.

Child As An Individual

Many times we, and this includes the parents, lose sight of the fact that a child is an individual. From birth, he has his own way of showing emotion. This is what gives him personality. We need have respect for him and let his questions guide us in alleviating his concern. We have all been slow in recognizing the importance of dealing with the child directly. The adolescent child, especially, should be given an opportunity to be seen apart from his parents. Being allowed to talk in privacy helps the patient-doctor relationship. Too often it is left to the nurse, medical social worker, or someone else to communicate needed information which would come with more reassuring force from the doctor himself.

Hospital Care of the Sick Child

Doctor Harry Bakwin states that a young infant's emotional reaction to acute illness is minimal. However, in an illness requiring long-time hospital treatment, Doctor Bakwin thinks the effect may be overwhelming, may even result in death. He has found that an infant is unable to tolerate long periods of hospitalization; that long terms of hospitalization without individual physical stimulation may cause him to become pale, thin, and listless. He may have frequent stools or may develop an unexplained fever which may go on for months; he usually is quiet and does not babble spontaneously. Doctor Bakwin reports that if the baby is sent home, a remarkable change for the better often takes place in a few hours. The cause of the symptoms he considers to be emotional deprivation.[1] Mary E. Lewis has also given an apt description of the child in long-time temporary placement as one living in one place and loving in another;[2] this same description applies to the hospitalized child. Older children and adults react differently to hospitalization in that they can originate emotion within themselves by something interesting, or an exciting idea.

A number of other authorities, however, have expressed the opinion that while the newborn infant, premature infant, and severely defective child seems to thrive in hospitals, the older infant does not. In general,

it is well to avoid keeping babies in hospitals longer than necessary. On a social basis we no longer use, by preference, foundling homes and large institutions but, when possible, provide care in the more normal foster home environment.

Though the medical situation may make long-term hospitalization necessary, the experience can be made a constructive one, emotionally as well as physically. Nurses should regard themselves not only as nurses but as mother substitutes. Infants should be picked up, loved, patted and fondled. Parental visits instead of being limited should be encouraged. In some hospitals on the continent, and notably in England, the mother takes care of the child and does everything for him but provide the medical treatment. Doctor James Spence of New Castle-on-Tyne, where this method is used, states that the child gets better medical care because in the mother he has a full-time nurse interested in him. Also, the mother learns new skills and acquires a greater sense of responsibility. This method also relieves the nurse, an important consideration in these days of nursing shortages. Nurses, students, and interns too may learn a great deal about the child's management from the mother.[3] In some hospitals, babies and mothers are admitted together. There is an interesting clinic in New Zealand called the Bassam Clinic where this method is used. Mothers take care of everything except medications and surgical dressings. In Bellevue Hospital, New York City, nurses and interns welcome the mother on the infant wards. Doctors and interns are encouraged to pick up babies and carry them about on rounds. Babies are assigned to interns. Not only is this helpful to the infants, but interns sometimes benefit as well as the babies.

For the older child, too, there are certain advantages in home care. The child feels safe. He has a full-time nurse, his mother. Some parents are less anxious and their feeling of responsibility is enhanced. Parents get satisfaction out of having nursed a sick child. Also, home care is less expensive than hospital care, no matter who pays for it.

But when home care is not indicated and hospitalization is necessary, it is wise to maintain the same parental sense of responsibility. It is extremely important to foster the parent-child relationship. This may be done by having the doctor or some designated staff member available during visiting hours to discuss various steps of treatment with the parents as well as by drawing the parents into the activities in which the child participates. When relieved of much responsibility, parents may become apprehensive of losing their rightful place in the relationship, or when the feelings of attachment are not very strong, they may break. This is especially true in the case of an unwanted or crippled child. We frequently see such a child neglected or the parents may just have disappeared.

Understanding of People is Essential in Helping Them

Some understanding of the parents themselves is essential so that when a block to treatment occurs the cause may be ascertained, thereby making medical care more effective. The block may be based on fear—fear of surgery, fear that a child may grow worse, fear that he will never be economically independent, fear of what others in the social group may think. It could be due to ignorance, lack of knowledge, inadequacy, immaturity, and a number of other reasons. A child, too, has his fears even though he may not demonstrate them. We must help both the child and the parents by determining the cause of their resistance. If one parent can be won over to a course of action, he can usually be trusted to know the best way of persuading the other. A crippled child has a sense of being different. He can not run and play as other children; can not compete in games and sports. He may feel inadequate and develop a sense of guilt associated with thoughtlessly made parental reproaches. The world seems unfriendly and he tries to revolt. Some ill children show regressive tendencies; they become dependent, demand attention, and are more selfish. Companionship with other children, with the therapist, and the teacher mean much to such children in a long drawn out illness. They bring the world to the child, and he is less apt to feel lost and neglected. For children, the hardest thing to bear is being objects of pity either to adults or other children. As children grow

older, they are concerned about the effect of their condition on the possibilities of future employment and in regard to marriage.

It is well for us to consider some of the problems children face. Though a child does not speak of them directly, we should be aware of their existence from the child's comments, questions, and actions and let these guide us in helping him. Once treatment has been decided upon by the doctor it is wise to explain it to the child and the parents. Surgery may be indicated. There may be immediate need or it may be of an elective nature. In the former, the child's distress or urgency of the situation usually commits all to immediate action. In the latter, however, there usually is ample time to consult with the parents as well as the child and allow them to come to a common decision. Sometimes a situation requires a great deal of interpretation and treatment. Past experience, half-told tales resulting in fears and apprehension, and financial situation all enter into the making of the decision.

We need to be understanding and helpful. Busy physicians sometimes find the process of arriving at a decision slow and time consuming. Some people can not bring themselves to ask questions. They must be helped. The physician's time is well spent if he patiently talks through the plan of treatment, the operation, and therapy thereafter. While a nurse or a medical social worker may be capable of doing the same, and frequently reiterates, the emphasis and best results come from the doctor's interpretation. We must also remember, that in the absence of parents, foster parents should be given the same consideration.

Timing of the Operation

Great import is placed on the timing of non-emergency operations. We are told that, in general, an operation should not be considered when a child is going through a period of stress. The most common contra-indication on psychological grounds, which is often missed because a child does not show overt signs of emotional disturbances, is the period of three months before to six months after the birth of another child in the family. In general, the years from three to six are considered hazardous for hospitalization. Being away from home is one of the most disturbing elements. For many a child it is his first time away from his mother. He can be helped by accustoming him gradually to separation, using a baby sitter for increasing periods or permitting him to stay at a friend's house while mother goes shopping. This all builds up his confidence that though mother leaves him, she always comes back.

Prepare Child for Operation

By being matter of fact, neither frightening him nor misleading him, we can help the child greatly. Sometimes play acting about going to the hospital is very helpful. For the child there must be someone to bridge the gap between home and hospital—a familiar face when he goes to the operating room, has anesthesia, and later when he awakens—if not his mother—the family doctor, intern, nurse, or anesthetist who has made a special effort to become acquainted before the operation. A small child helped wisely may come out of the experience with increased confidence in coping with future problems in life. Illness tends to effect not only the individual's independence and self-respect, but his mode of living and even his emotional balance. If pressures become too great, he may not wish to recover or it may retard his convalescence.

Role of Medical Social Worker

In this article little has been said about the role of the medical social worker in relation to the sick child and his parents. She functions essentially as a caseworker in any setting—to help the person in trouble assess his situation, the problem, and the assets within himself and his environment in order that he may capitalize on his strengths and resources in moving toward maximum responsibility in his own behalf. Essential to the successful performance of this function is the caseworker's professional knowledge and experience, and ability to search for facts, analyze and make use of them in the service to the patient; ability to create with the patient a relationship in which he is helped to view, as he is able, the reality that confronts him. Also, it is essential to help him recognize and know the forces contributing to his difficulties and those strengths within himself, his family, and his community, includ-

ing the hospital, which he may use to meet his situation or to change it.

The medical social worker gains information about the family, its strengths, and its needs on which a social diagnosis can be based. In the course of her study of the patient and his family, she is able to give them some help too, but what is important, also, she contributes her knowledge of the social needs to the physician and other professional personnel who might be involved so that they may take these facts into account when planning for the care of the patient and when carrying out the plan. In many cases, she will recognize needs in the family situation that can be met only through collaboration with outside agencies. Here she uses her knowledge of community resources to help the family.

We know that specific treatment for a twisted leg or sore joint is not enough. We realize how strongly the child's physical well-being is influenced by his feelings about his family, his school life, and his playmates. As we recognize more and more how closely the individual's physical, social and emotional needs are inter-related, we can see better how necessary is teamwork between members of the various professions who are trying to help the patient return to health.

SUMMARY

Illness and surgery may leave a marked effect on a child's personality. We, as well as parents, often lose sight of the fact that a child is an individual. We must have respect for him and let him guide us in helping him by his questions, comments, and actions.

When there is long-term illness, it seems wiser to institute home care wherever possible for both younger and older children. If hospitalization is necessary, as many factors of home care as possible should be brought to the hospital situation including loving care from the doctor and hospital staff, especially one designated individual serving as a parent substitute, a role usually played by the nurse. There should be a tying-in of home and hospital, carrying parents along in each step of the treatment.

Timing of operations is important. Avoidance of periods of stress will help the child. In all dealings it is important to establish the child's trust in the doctor and medical team. In preparation for periods away from home, it is prudent to prepare both the child and parents in regard to treatment, operation, and convalescent care. Questions should always be answered honestly. Thus helped, many small children may come out of the experience with illness with increased confidence in coping with life's future problems.

The medical social worker helps the person in trouble assess his situation, his problem, and his assets in himself, family, and community; to capitalize on his strengths and thus help him face his situation or change it. All of us—the doctor, the nurse, the medical social worker, the therapist, and others—recognizing how strongly a child's well-being is inter-related with emotional and social needs, must be alert to our responsibility and in helping the child.

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CO-OPERATION BETWEEN PUBLIC HEALTH PERSONNEL AND SCHOOL NURSES

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During this year the Delaware State Board of Education appointed the Director of the Division of Public Health Nursing of the Delaware State Board of Health to the position of Co-ordinator of School Nurses in the employ of the State Department of Public Instruction. This appointment is without remuneration but it affords an opportunity for promoting even closer work relationship between school nurses and the nursing service of the County Health Units of the State Board of Health.

Services available to school nurses through this appointment include the following:

On State Level: The Public Health Nursing Director and the public health nursing supervisory staff are available to give consultant service on school nursing and program planning, policies, procedures, etc.—on a request basis—to State Department of Public Instruction personnel. She is also available—on a request basis—for planning and

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arranging of inservice school nursing institutes in Dover for school nurses.

On Local Level: School nursing consultant services are available to school principals and school nurses—on a request basis—by qualified generalized public health nursing supervisors of county health units (professional qualifications—specified in Delaware Merit System for State employees). School nurses are invited to attend the inservice school nursing educational meetings in county health units. Content of the programs for the meetings would include use of the county health unit personnel and special consultants on the State Board of Health staff, i.e., Maternal and Child Health, Tuberculosis, Social Service, Nutrition, etc. Purpose of these meetings is to acquaint the school nurse with available health resources in her territory and to promote closer work relationship between school health workers and the personnel of the county health units.

Principals and school nurses of all of the schools have been visited by the Public Health Nursing Director and the Nursing Supervisors of the County Health Units to interpret the service to them and to offer assistance in planning details of the school nursing coordination program according to the expressed needs of the school health personnel.

The State Board of Health continued its program to provide health services to school and preschool children. Public health nurses on the staff of the county health units participated in the control of communicable disease by making home visits to teach and demonstrate nursing care and for making epidemiological investigations. They also visited the schools to assist with the immunizations and the physical examinations of school and preschool children.

The school nurses have contributed to the general health services of the communities in which they are employed by working cooperatively with the public health nurse in the districts in cases of family health problems such as tuberculosis, venereal disease, and crippled children.

We repeat what has often been said: "health services are the concern of everyone," and only well planned cooperative efforts will bring us nearer our goal of good health for everybody.

IMPROVISED PHYSICAL THERAPY EQUIPMENT AND TECHNIQUE OF USE IN THE HOME

CAROLYN THOMAS, B.S., R.P.T.,
and
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It has been found that many types of physical therapy treatments can be carried on adequately and safely in the home. In view of the present shortage of qualified personnel to perform home therapy treatment and the lack of clinical facilities, especially in rural areas, it is felt that improvised home therapy procedures, prescribed by the physician, would provide the necessary services. With the use of rather simple modifications many modalities of physical therapy can be ordered by the physician and safely carried out by the patient or his family. To review all types of cases that require therapy would be impossible and beyond the scope of this paper. Rather, an attempt is being made to discuss the commonly used modalities and suggest the way in which simple equipment can be substituted for the more expensive types found in hospitals and clinics, and the way in which these treatments are properly administered, so as to provide maximum benefit to the patient.

The modalities used in physical therapy are most often divided into four categories: thermotherapy, hydrotherapy, electrotherapy and mechanotherapy. The physiologic results of these modalities will be mentioned only briefly.

Thermotherapy is the most readily adaptable for home use. The local application of heat is the most common modality used in medical practice. Heat may be generated and applied to the body by means of hot bricks, hot water bottles, flat irons, heating pads and various types of Infra-red generators. Bricks and flat irons are objects commonly found in the home and both can be heated in a hot oven or on top of the stove. They should then be wrapped well in turkish towels sufficient to prevent burning of the skin and then may be applied to the area to be treated. Hot water bottles and heating pads can both be obtained in any drug store. Adequate di-

*Physical Therapists, Delaware State Board of Health.

rections for operation accompany the heating pad, and it is important to take the same precautions of wrapping with the hot water bottle as with the bricks and iron. Any ordinary glass bottle, with a tight-fitting cover, which is of at least one quart capacity, is suitable for use as a hot water bottle. The above mentioned objects can be held to the part being treated by wrapping, using two to four inch wide strips of cloth or webbing, wrapping so that the object is held securely, being sure that it is loose enough to prevent constriction.

Infra-red bulbs can also be purchased in a drug store. These are effectively used in a bridge lamp, preferably one whose neck can be adjusted to various angles. The lamp can be placed beside the bed and adjusted so that the rays shine directly on the area to be treated. The bulb should be 20 inches away from the body. The lamp shade should be kept on so that the rays will not be diffused throughout the room, and towels or a sheet may be draped around the shade and down to the body, for the same reason. Treatment with any of the above modalities should last at least 20 minutes and should not exceed thirty. It is important to remember that areas where there is a nerve injury, or a lack of sensation from any cause, should not be treated with heat, in the absence of close supervision of such treatment by a physician or therapist.

The use of water in the treatment of injured parts is also easily adaptable in the home. Cold water helps to reduce edema by means of constricting blood vessels in the area. Hot water is used for relief of pain in many conditions, such as arthritis, fractures, etc. The heat causes blood vessels to dilate, thus carrying more blood to the part which helps in turn to relieve congestion in and around the area. Hot water also aids in relaxing tense muscles, thus relieving pain and preparing the part for exercise. The following is a general classification of water temperatures: 55°-65° F—cold; 80°-93° F—tepid; 93°-98° F—neutral or warm; 98°-105° F—hot. Applications of neutral temperature give no thermic or circulatory effect.

A hot tub or foot bath is used to increase circulation and relieve pain and muscle spasm. The bath tub should be filled with enough water to cover the body, at 100°-110°F. The patient should get into the bath quickly and remain in the water five minutes. At the termination of the bath he should be quickly doused with cold water or have an alcohol rub and retire to bed immediately. While in the bath a cloth soaked in ice water should be held to the forehead or nape of the neck in order to prevent cerebral congestion.

The above method can be used for a foot bath, and is valuable in the treatment of sprains, contusions and chills. These baths should not be given in cases of peripheral vascular disease.

The contrast bath, the alternate immersion of a part in hot and cold water, is another very effective means of increasing blood flow. The part to be treated is immersed in hot water for a period of six minutes, then immersed in cold water for a period of four minutes. Continue alternate immersions 7 to 9 times. Be careful to maintain constant temperature by frequent additions of hot or cold water as the treatment progresses. Always begin and end with hot water.

A sitz or hip bath can be given satisfactorily in the home by using an ordinary wash-tub. The patient sits in the tub with the water at the level of the umbilicus and most of the legs outside the tub. These baths are either hot or cold. During the cold bath, the immersed parts should be rubbed briskly and the rest of the body should be kept covered with towels or blankets. After the bath, the skin should be rubbed dry with a towel. With the hot bath no rubbing is required, but the head should be kept cool with cold packs or compresses. A cold bath should last five to ten minutes and a hot bath should be of 15-20 minutes duration.

Cold compresses for night treatments can be used for painful joints. This is done by wrapping the part in a cloth wrung out of ice water. This is covered with a piece of plastic to prevent the cloth from drying out, then wrapped with a piece of woolen material. This is pinned firmly and left on all night.

It is felt that electrotherapy is unsafe and

impractical for use in the home, as this modality requires very close supervision of the therapist or physician.

Our fourth modality is mechanotherapy—the use of mechanical equipment. One of the most useful and versatile pieces of equipment is the ordinary sash cord and pulley. Innumerable combinations of the above with the adjunct of cloth slings and sandbags has numerous possibilities, limited only by one's ingenuity and the circumstances of the illness.

With the addition of a head sling to the above items, head traction, which is a well established procedure commonly used to relieve pain in the cervical and lumbar spine, can be applied at home. Place two hooks in a door jamb, then place two pulleys on hooks and thread a line through the pulleys. On one end of the line, place a five pound sandbag—patient may have larger sandbags available in case it is felt that he can tolerate a heavier load. Patient then slips the sling over his head so that the center of the sling fits under the chin in front and under the head in back. The patient sits erectly in a straight chair in the doorway with his legs extended and crossed at the ankles. A member of the family then lowers the sandbag until the head is under constant tension. Heat applied to the back of the neck just before or during the stretching is of value. Continue this stretching for five or ten minutes.

The sash cord, sandbag and cuff-like sling are also very valuable to the amputee for exercising the stump in preparation for his prosthesis. Place the pulley on the bed post for a pivot point, and patient can exercise both sitting in a chair or lying in bed.

In post-surgical cases or in general convalescent cases in which recumbent exercises are indicated, a bed bicycle can be constructed by simply removing the pedals and socket from a bicycle and mounting the parts in a block of wood, the center of which should be approximately 8 inches from the base of the block. This would then allow space enough for the pedals to rotate.

When the patient is well enough to be ambulatory for short periods and mild exercise is desired, an ordinary bicycle can be used by removing the front wheel and then mounting the front brace on a box or stand and the rear wheel on the parking stand, thus creating a stationary bicycle.

Ordinary home beds can be turned into a hospital type bed by the simple expediency of placing blocks under the legs of the bed and by placing a sheet of plywood under the mattress. In cases where foot drop is to be prevented, a box with closed end toward the head of the bed can be placed at the foot of the bed.

In many illnesses parallel bars and trapezes are indicated. There is now on the market a set of portable light weight bars that weigh only 35 pounds. Also, with simple instructions, a plumber can construct the necessary bars. If this service is not obtainable the patient can line up two rows of chairs, back to back, and effectively use these in place of parallel bars by walking between them and holding on to the tops. If necessary, heavy objects can be placed on the seats to prevent tipping.

The use of slightly more complicated equipment is sometimes indicated. There is a great deal of literature available on plans for constructing such equipment. A carpenter can easily follow these drawings. Information regarding improvised equipment can be obtained by contacting the Physical Therapy Division of Crippled Children's Services of the Delaware State Board of Health.

AMERICAN TRUDEAU SOCIETY

The annual meeting of the Eastern Section of the American Trudeau Society will be held Friday and Saturday, October 31st and November 1st, in Philadelphia, Pa. Headquarters for the meeting will be at the Bellevue-Stratford Hotel in that city. Members of the Society wanting to present papers are urged to communicate promptly with the Chairman of the Program Committee, Dr. Katharine R. Boucot, 311 Juniper Street, Philadelphia, Pa.

+ Editorials +

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THE 1952 MEETING

The 163rd Annual Session of the Medical Society of Delaware was held at the Rehoboth Beach Country Club, Rehoboth, September 8-10, 1952, President Ervin L. Stambaugh of Lewes, presiding.

The meeting of the House of Delegates was notable for the dispatch with which its transactions were handled, several of the reports involving routine statistics being read by title. The main business of the evening was the adoption as amended, of the fourth Amendment to the By-Laws, as printed in THE JOURNAL for August, 1951, concerning members who have retired, and the reports of the Committees on Feeblemindedness and on Health and Sanitation. The full Transactions will be printed in the December issue of THE JOURNAL.

The scientific meetings proceeded exactly as printed in the August JOURNAL, every scheduled essaying being present. These papers were of a very high order, and were well received and adequately discussed.

The elections for the year 1953 resulted as follows:

President, Victor D. Washburn ..... Wilmington
Vice-President, Leslie M. Dobson ..... Milford
Secretary, Andrew M. Gehret ..... Wilmington
Treasurer, John M. Messick ..... Wilmington
Rep. to D. A. M., W. Oscar La Motte, Wilmington

The Woman's Auxiliary met at the Dinner Bell Inn, under the Presidency of Mrs. Sylvester M. Rennie of Wilmington. A business session on September 9th was followed by their own luncheon, attended by 48 members and guests. On September 10th, at another business session, the following officers for 1952-1953 were elected and installed:

President, Mrs. Willard F. Preston .... Wilmington
President-elect, Mrs. Allan R. Cruchley, Middletown
Vice-President, Mrs. James Beebe, Jr. ..... Lewes
Recording Sec'y, Mrs. John B. Baker ..... Milford
Corresponding Sec'y, Mrs. Edward T. O'Donnell, Wilmington
Treasurer, Mrs. Lawrence L. Fitchett ..... Milford

The social events were particularly pleasant. Following the House there was a brief social hour for the members present. The luncheon by the Sussex County Society on September 10 was attended by 93 guests, and that given by the State Society was attended by 89 guests. The main social event was the reception and dinner on September 9, which was attended by 105 persons and was addressed most entertainingly by Mr. J. Wallace Woodford, formerly Mayor of Dover.

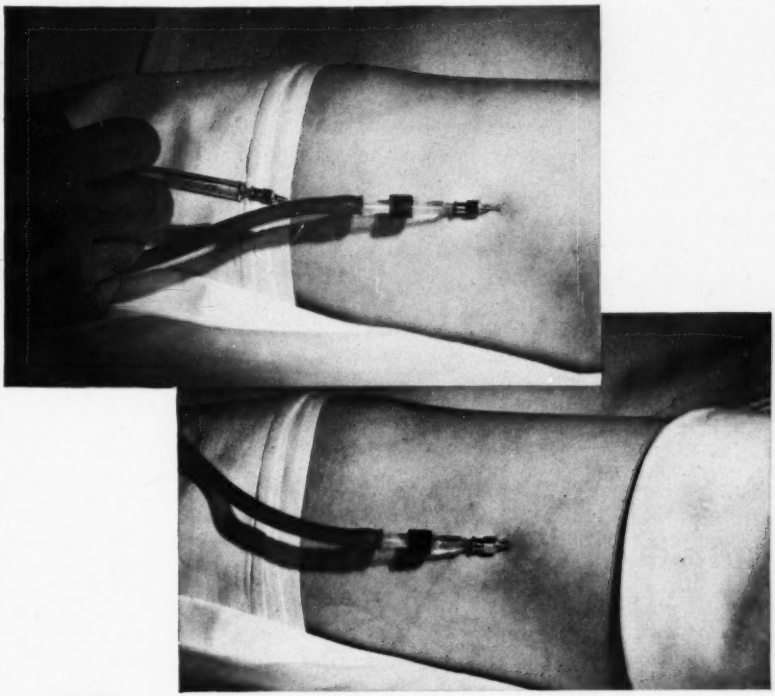
The technical exhibits again reached a high level of excellence; there were 22 exhibitors occupying 23 booths. With the expansion of the Society's activities and the increasing costs thereof the Society is becoming more and more dependent upon the financial success of its technical exhibit to make its convention expenses balance. Our exhibitors this year seemed pleased with the arrangements made for them, and several stated they would be with us again next year at Wilmington.

The registration was as follows:

Members	81
Guests, Visitors, etc.	36
Residents, Internes, etc.	5
Exhibitors	34
Medical Society	156
Woman's Auxiliary	44
Total	200

The membership registration, 81 of a total of 333, was 24.3 per cent, slightly below the 1948 Rehoboth meeting.

So passes into history the 1952 Session. Now let us turn our faces toward Wilmington and make the 1953 Session an even better one.



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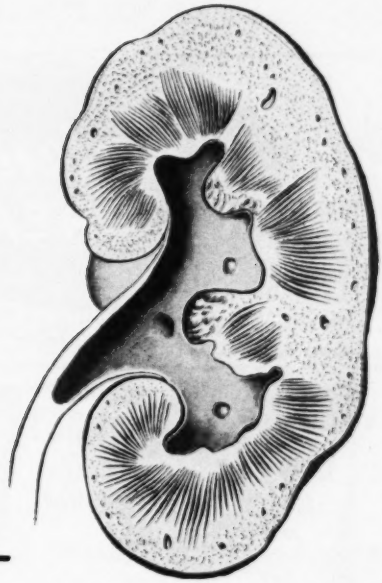

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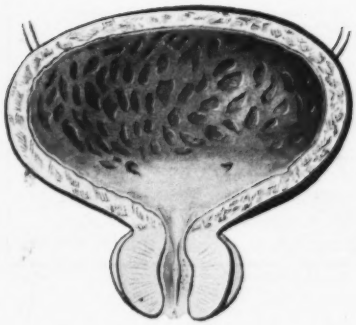

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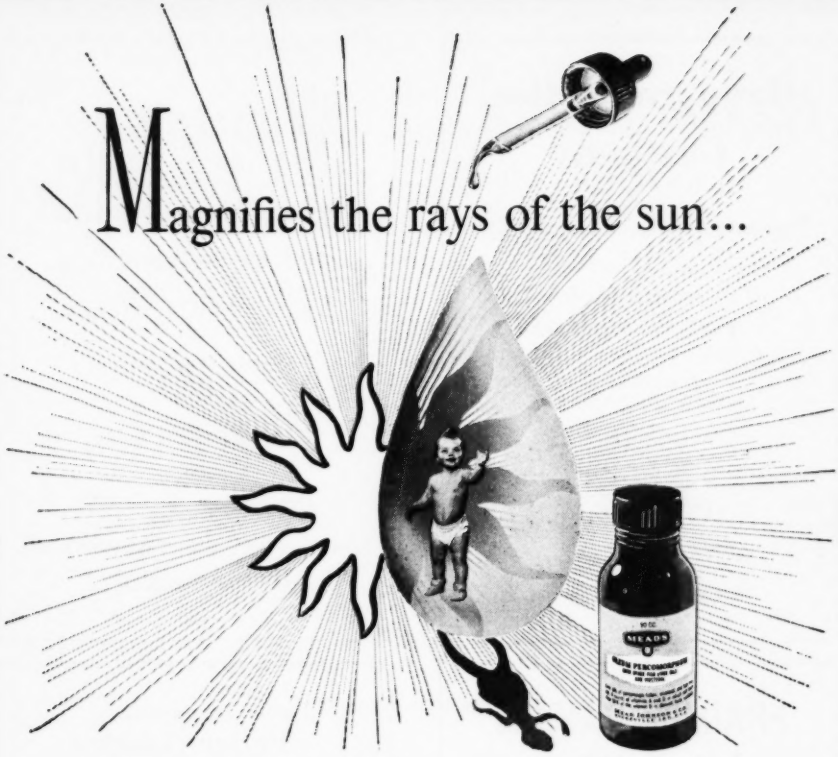

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